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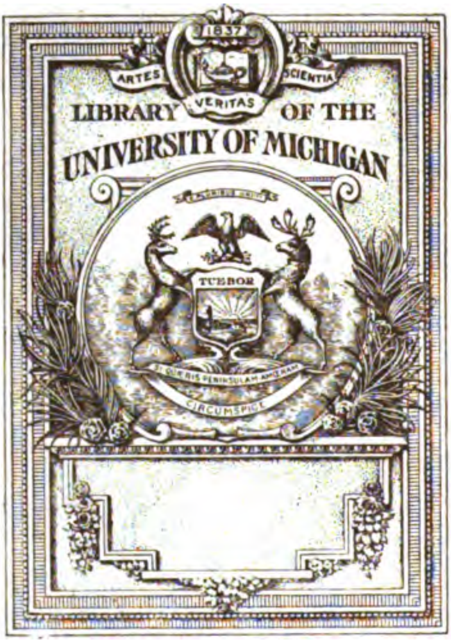

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NINETEENTH BIENNIAL REPORT

OF THE

California.

STATE BOARD OF HEALTH

OF

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CALIFORNIA,

FOR THE

FISCAL YEARS FROM JULY 1, 1904, TO JUNE 30, 1906.

SACRAMENTO:
W. W. SHANNON, : : : : : SUPERINTENDENT STATE PRINTING.
1906.

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1906.

OFFICE OF CALIFORNIA STATE BOARD OF HEALTH,
SACRAMENTO, September 15, 1906.

To His Excellency, GEORGE C. PARDEE,
Governor of California.

DEAR SIR: In accordance with the State law, I herewith transmit to you the Nineteenth Biennial Report of the State Board of Health of California, including the report of the Bureau of Vital Statistics and of the State Hygienic Laboratory, for the fifty-sixth and fifty-seventh fiscal years.

Yours, very respectfully,

N. K. FOSTER,
Secretary of State Board of Health.

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REPORT OF STATE BOARD OF HEALTH.

The work of the State Board of Health was broadened very extensively by certain laws passed at the last regular session of the Legislature. Instead of being an "advisory board," with simply the privilege of offering suggestions, there are now defined lines of work which it is required to do. These lines relate entirely, as they should, to the gathering and arranging of vital statistics and to public health and sanitation. The Board entered upon its new duties with an enthusiasm born of the conviction that its work was, in importance, exceeded by no other department of the State government, and with a determination that California should, in the excellence and effectiveness of its health department, stand with the foremost states of the Union. How far we have succeeded, the record of our work must show.

The new Bureau of Vital Statistics has, in the short time of its existence, attained a degree of perfection which warranted the United States Census Bureau in accepting its statistics for the Census Bureau's work and in admitting California as a registration state—a distinction attained by but few of the Eastern States.

The State Hygienic Laboratory, which was created by the last Legislature, is well established and has done much excellent work for the various local health departments and physicians. Its examinations of secretions from the throats of patients have been the means of early diagnosis of diphtheria in many cases, thus averting epidemics. Work has been done also in typhoid, tuberculosis, and other contagious diseases. Examinations of water and milk have also been made, and the important subject of disinfection is being investigated.

A full report of each of these departments is appended.

The routine work of the State Board of Health and its Secretary can not be detailed in this report, but can be found in the minutes of the Board and in the reports of the Secretary rendered to it at each meeting. The Secretary has given his entire time to the work, and in answering requests for help and making investigations of unsanitary conditions has visited most parts of the State. One conference of the State and Provincial Boards of Health and one of the United State Public Health and Marine Hospital Service with the State Boards of Health have been attended in Washington, also the American International Congress on Tuberculosis in St. Louis. The conferences during the present year were not attended, as the extra amount of work falling upon the Board on account of the catastrophe of April 18 took its time and means. This is to be regretted, as the information obtained at these conferences, composed, as they are, of the best sanitarians of the country, is of the greatest aid in perfecting our own sanitary conditions.

The office work of the Secretary has grown to large proportions. The correspondence takes a great deal of time, as there is a general awakening among the people in regard to sanitary matters. The Board has insisted that towns dispose of their sewage without endangering the health of other places or people, and the Secretary is called upon to investigate and recommend plans for doing this. The varying conditions in different parts of the State make this no easy task, and the details require a great deal of time. The Board is in constant receipt of letters of inquiry, the intelligent answering of which calls for much time and investigation. These letters, however, have all been carefully answered and filed.

For the past year we have published a Monthly Bulletin, containing matters pertaining to public health and sanitation, which is sent to all health officers, to those connected with the collection of vital statistics, to newspapers, and to others who have signified their desire for it. This bulletin has been the means of disseminating much needed information among our people.

The plans and specifications of all buildings erected by the State have been carefully examined in so far as they related to sanitary conditions, and needed suggestions and alterations were made.

The sanitary care of the State institutions has received our most careful attention, and beneficial results have been obtained.

No provision is made for any assistance for the Secretary, except such as can be secured from the appropriation of $2,500 per year for traveling and contingent expenses. As all traveling expenses of the entire Board and its Secretary, as well as all office and contingent expenses, have to come from this fund, there is very little available for help. A clerk should be furnished the Secretary and placed on the State payroll. The State is growing rapidly, and the sanitary work even faster, and unless more help is furnished this work can not be effectively carried on.

As the law requires, we have made suggestions and recommendations as to legislative action. The appropriations asked for are all actual needs of the various institutions or departments and have been suggested only after careful investigation. Some of them are imperatively necessary at the present time, and all will have to be granted in the near future in order that the health of the inhabitants of the State may be guarded and the good condition of the State institutions maintained.

VITAL STATISTICS.

At the last regular session of the Legislature a law was enacted creating a department in the State Board of Health to be known as "a Bureau of Vital Statistics, for the complete and proper registration of births, marriages, and deaths, for legal, sanitary, and statistical purposes, which bureau shall be under the supervision of the Secretary of the State Board of Health, who shall be ex-officio State Registrar of Vital Statistics. The State Board of Health shall appoint a competent statistician to assist the State Registrar of Vital Statistics, and such clerical and professional assistance as may be required for the proper discharge of the duties of said Registrar."

The law fully set forth the work to be done, and it needed only the organization of the department to begin work. The former law relating to the collection of vital statistics had never been enforced to any extent, and but few in the State seemed to appreciate the probability of such a law being made effective.

The Board secured the services of George D. Leslie of the United States Census Bureau, and to his marked ability and knowledge much of the success of the department is due. As the collection of these statistics imposes duties on a vast number of people—doctors, clergymen, undertakers, county and town officials—a great deal of correspondence and work was necessary.

The law took effect May 18, 1905, but owing to a delay in getting blanks, the bureau was not in active operation until a month later. Since that time, however, it has gone steadily forward, not without some friction, but with steadily increasing accuracy, so that now a large percentage of all deaths are reported, as are also marriages. It is much more difficult to get births reported. Much of the objection to this work is, however, being overcome, and this important work is steadily gaining in efficiency.

All deaths, births, and marriages reported to this office have been, as the law requires, properly and completely indexed, and the certificates bound, so that reference can be made quickly to each one on record. This has required the writing of from 7,000 to 8,000 cards each month—a work of no small proportions. The State has been divided into districts and the causes of death have been tabulated in each district, so that it is possible to tell where certain diseases prevail, which will be of value as soon as the data have been carried far enough to reason from cause to effect. Marriages and births have also been properly tabulated and arranged. These tabulations and deductions are made a part of this report. All this has required a great deal of work, and the present force in the office is altogether insufficient. The law requires the Board to appoint sufficient assistants to the Secretary, but the appropriations will not warrant it, and much work that we would like to have done has, of necessity, been passed. The value of an index is in its accuracy, and the careful making out and filing of 8,000 cards a month, together with making out certified copies which the law requires, is more than one person can do. This is by no means all the work. The correspondence of the department has grown to large proportions. Every day letters are coming from parties interested in these vital statistics, and their answer calls for much careful work and study. At the present time the statistician has no clerk, and must get along with only such aid as can be accorded him from the Secretary's office, which is itself overcrowded with work. It is imperatively necessary that a clerk be assigned to this department, for it would be a great misfortune to the State if the collection of these statistics should be in any way curtailed. They are considered everywhere of the utmost importance, and the United States Census Bureau, considering ours to have reached a proper degree of perfection, has placed the State on its list of registration states, accepting our statistics for its work. Should we fall back, this honor will be taken from us, and California can not afford to go backward.

The advantages of having the original certificates of deaths, births, and marriages on file at the State Capitol were strongly emphasized by the fire at San Francisco, where all records were lost, leaving those at the State Capitol the only ones in existence. This is liable to occur at any time and in any place. Every birth, marriage, and death should be a matter of record in the State Capitol, and stored in fire-proof vaults, for no more important records exist than these.

SANITARY WORK.

During the past biennial term the State Board of Health has been active in awakening an interest in sanitary matters and in seeing that the State laws relating thereto are enforced. As a result there has been a great demand upon the Board for aid and information. Requests are received from all parts of the State asking that a representative of the Board visit them and solve some sanitary problem. These have generally to do with the destruction of sewage; sometimes they are prompted by a demand from the Board that the pollution of some stream or lake must cease; but often the step is taken as the result of a general feeling, now on the increase, that no one has a right to poison his neighbor's water supply. As far as possible these calls have been answered by a member of the Board going in person to investigate and advise. The result has been that much sewage and waste matter which formerly flowed into streams, thereby polluting them and spreading disease, especially typhoid fever, are now destroyed.

Water, which enters so largely into the composition of the human body and is therefore necessary to the comfort as well as the existence of life, should in all cases be pure. This, however, is not the fact, and many of the sources of supply of cities and towns, as well as of private houses, are bad in the extreme. The sewage of cities of considerable size is even allowed to run into the water supply of some neighboring city, while they in turn drink the diluted sewage of cities above. Probably the greatest danger from this method of sewage disposal is in the pollution of the smaller streams that supply the foothill towns. The Board, in so far as its means will allow, has inspected the various watersheds, and has succeeded in preventing much pollution of ice and water used for domestic purposes and in removing many nuisances. The proper destruction of sewage, thereby safeguarding the purity of our water supplies, is a subject that requires the constant and careful supervision of the Board. There is no part of the work that is of more importance, and none that in some places arouses so much antagonism. The streams are looked upon by some as natural sewers and the proper repositories for dead animals and garbage, and such persons consider their personal or municipal rights infringed upon when efforts are made to keep these streams clean. An epidemic of typhoid fever in the community, traced to such pollution of the water supply above, generally convinces all such that the other man or town is doing wrong, and it is then easy to bring home to them the fact of their own wrongdoing.

During the past two years several towns have installed septic tanks for the destruction of sewage, and generally with very satisfactory results. Some of the State institutions have also adopted this means of destroying sewage, and we earnestly recommend it in such others as have conditions favorable to it.

INSPECTION OF SUMMER RESORTS.

Complaints that come into the office of the Secretary of the State Board of Health of the unsanitary condition of some of the many summer resorts, together with the fact that many persons returning therefrom have almost immediately been taken down with typhoid fever, have demonstrated the need of the inspection of such places. The large number of summer resorts in California, and the vastness of the territory over which they extend, make it impossible for the Board, with its limited force, to inspect more than a small percentage of such places. The work has been confined chiefly to those of which complaint was made and of others in their vicinity.

As a general rule, the resorts are in good sanitary condition; but there are enough that are bad, and very bad, to cast a shadow in the public mind on all. This, of course, is unjust and should not exist, for the outdoor life that is part of a vacation spent in the mountains or at the seaside is of the utmost value to those who can experience it, and everything possible should be done to encourage such outdoor life.

The visits made by a representative of the Board have resulted in much good, for in no case was there shown anything but willingness to correct all faults and improve the sanitary conditions to the fullest extent. A general inspection should, however, be made, and we have no doubt that much sickness would be avoided and many lives saved by such a move.

The greatest danger is from transient campers outside the organized camps or resorts. They establish a camp for a night or a longer time upon any convenient stream, which they use for all purposes—for bathing, washing clothes, allowing stock to stand in it, as a depository for camp rubbish, and as a sewer. As a result, those below, either permanent inhabitants, other campers, or those stopping at organized resorts, have to use polluted water, and in this way much of the typhoid fever is taken.

A vacation spent in traveling through the State, camping at night and living in the open, is both delightful and healthful, and should be encouraged, but at the same time the campers, as well as others, should be guarded from the dangers that beset them. Camping on streams which supply towns with water should be prohibited within a certain distance of the intake. This would not materially lessen the opportunities for camping, but it would be a great protection to towns.

Authority is already vested in the State Board of Health to guard the purity of domestic water supplies, but the means of doing it are not in its hands. In a State with the dimensions of California, it is impossible to properly guard, with the present force, the sanitary conditions that come under the State Board's jurisdiction. A law should be enacted making the county health officer practically a deputy of the State office, and accountable to it. This would give the State Board fifty-seven deputies, who could be easily reached by mail or wire. Complaints could be quickly attended to, and, where necessary, notices posted on all streams directing what care should be taken by campers so that no danger would result from their acts.

CONTAGIOUS AND INFECTIOUS DISEASES.

While there has been, perhaps, the usual amount of contagious diseases in the State, there has been no extensive or particularly fatal epidemic.

Smallpox has been unusually prevalent, and was much more serious than in recent years, the percentage of deaths in some localities approaching what it was in pre-vaccination times. However, by active measures on the part of the local health departments, the disease has been checked before it had spread far. In some cases the disease was wrongly diagnosed and many exposures occurred before the mistake was discovered. Most of those exposed sought vaccination at once, and escaped either altogether or with a very much modified form of the disease. A few refused to be vaccinated, and enjoyed the experience of the disease in its full force.

Vaccination, the only known preventive of smallpox, has been neglected for several years in some parts of the State, and there has come upon the stage a generation, too many of whom are unvaccinated. This neglect has caused the death of many innocent victims and the unsightly marking of many more. It is strange that in this enlightened age, when almost all physicians, and especially those who have had great experience with smallpox and vaccination, are so pronounced in favor of vaccination, there should be a few who so bitterly oppose it. They are in a hopelessly small minority, but by organization and by constantly keeping before the people the supposed danger and the idea that their rights are being trampled upon, they keep many from being properly protected.

In most cases where the disease became prevalent, all willingly sought the protection of vaccination, and we have reason to hope that this awakening will be beneficial.

Typhoid fever has claimed its usual number of victims, especially in the foothill and mountainous parts of the State. This condition will continue so long as the mountain streams, the great source of water supply for these sections, are used to receive the drainage of the habitations along their banks. While water is not the only source of typhoid fever, it is in these sections the principal one, and in several cases there has been no trouble in suppressing the disease by providing a pure supply of water.

Flies as a means of its spread should not be forgotten, for if allowed upon the dejecta of a patient, they will carry the germs to any one within their reach, and several outbreaks have been traced to them. It is not too much to hope that the time will come when house flies will not be tolerated. They are a danger as well as a nuisance, and can be practically exterminated by preventing their breeding.

Diphtheria has lost much of its terrors since the use of antitoxin in its treatment, and the death-rate has materially decreased. If this remedy were in the hands of all physicians and used early there would be practically no deaths from this disease. Several of the Eastern States furnish antitoxin free to indigents, with the result that the death-rate is far below what it is in California. There is no doubt that the cost of the remedy has limited its use.

Plague.—One case of plague has occurred during the biennial term. The patient lived in fair sanitary conditions and worked steadily in a door and sash factory. Four days before the attack he was hunting squirrels in a section where they had been dying from some epizootic. No plague rats could be found, and as there was no other probable source of infection, the conclusion seemed reasonable that it was contracted from the squirrels. The patient, while severely sick, recovered. An effort has been made to have the United States Government, through the Public Health Department, investigate the disease among the squirrels, but thus far without success. They have died extensively in some parts of the State, and the farmers are thereby relieved of a great curse. If the disease attacking the squirrels is harmless to man it should be spread, but if in reality it is the plague, that fact should be made known, so that proper steps can be taken to protect the people.

Scarlet fever, *measles*, and *whooping-cough* have occurred in their usual amount, and we will have them with us until such time as all cases are properly reported, isolated, and disinfected. In the past this has not been done; many cases, being light, have had no physicians in attendance, and hence are never reported, nor proper precautions taken. Sometimes when a physician is in attendance, he yields to the pleadings of relatives, who, because the case is "light," do not wish to isolate the patient, and frequently allow the child to associate with others long before it is free from contagion. These diseases are by no means a necessary part of one's existence, and as many deaths result from them, particular care should be exercised to keep children from exposure. This will never be possible until there is a law enacted requiring all contagious, infectious, and communicable diseases to be reported to the health officer by the physician, if one is in attendance, otherwise by the parents or guardian, and a severe penalty for its disobedience. Such a law we heartily recommend.

TUBERCULOSIS.

More deadly than any other disease, tuberculosis easily leads the list of causes of death, one in every seven deaths resulting from it. As this is a preventable disease, such a death-rate is not flattering to the State and calls for active work on the part of all classes of society and branches of government. The death of over 4,000 per year from one disease, and that a preventable one, should alarm every one. If diphtheria, cholera, scarlet fever, or any of the actively contagious diseases should kill one quarter this number there would be such consternation that people would leave the State. The fact that one in every seven of us is doomed to die of this disease does not, however, seem to cause concern, except among the very few who interest themselves in the welfare of the human race. The old feeling that tuberculosis is unavoidable has not fully passed away and its slow invasion makes it seem less dreadful. The high death-rate in California is not normal to the State, but is the result of so many coming here from other states, seeking the advantages of our climate, but seeking it too late, and dying during the first few weeks of their residence here.

Consumption should be a rare disease in California, and if people were properly instructed as to means of prevention, and these means provided for them where they can not secure them themselves, it would be. Very much can be done by education, and therefore such means of enlightening our people on the contagiousness of this disease should be pushed to its utmost; but it avails little to teach parents that good food, rest, and country air will restore their child to health when the means of the family will provide only a miserable living in a more miserable tenement. The State has a duty here in passing laws that shall require tenements to be built so that all rooms will receive air and sunshine, and that workshops and factories shall be kept in a sanitary condition; and each city and county should provide sanatoria for those who can not be properly treated at home.

We would strongly advise that an appropriation be made for the purpose of publishing and distributing educational matter relating to the prevention and management of this and other communicable diseases. Also, that a law be passed prohibiting expectoration in public buildings and in public conveyances.

PURE FOOD.

At last a pure-food bill has passed the United States Congress and become a law—a long-needed step in the right direction. Congress can, however, deal only with interstate traffic. The law will give us some relief in the prevention of shipments of impure and adulterated foods and drugs from other states, but none from unscrupulous manufacturers at home. That much suffering is caused and many deaths result from impure and adulterated food, no one who has studied the conditions will for a moment doubt. Most of our long list of deaths from enteric troubles are the result of impure food, and to stop the deaths the cause must be removed. This the State can do, and if she wishes to keep in the van of progress, she must take steps to prevent the wholesale slaughter of her inhabitants. The slaughter of these thousands by adulterated food is, to all intents and purposes, as much murder as though they had been killed by the more active poisons, as strychnine or arsenic, and the perpetrators should be dealt with accordingly.

Our State Legislature should enact a law as nearly as possible along the lines of the United States law, prohibiting the manufacture, sale, or shipment of impure or adulterated food and drugs, and also insuring their being properly labeled. Our character as a State depends in no small degree upon the honesty of the manufacturer, and one shipment of impure or falsely labeled goods will do us more harm than any number of pure ones can counteract. We should have the same interest in protecting the health of the person who is so unfortunate as not to live in California, as we would have were he one of us. We earnestly recommend a safe and strong pure-food law, with the necessary appropriation and authority to enforce it.

RIVER OVERFLOW.

It may seem a long step from river overflow to sanitation, but a moment's consideration will show that it is a subject pertinent to the State Board of Health. Each winter and spring thousands of acres are flooded with water teeming with vegetable and animal life. This water, as the river falls, is confined behind the levees, and under the influence of the hot sun soon becomes stagnant and putrid from decaying matter. The odors arising from this are terrific, and this Board is sometimes called upon for relief. That these complaints are just, a short sojourn in the neighborhood will prove; but it is impossible for the Board, or any one else, to give the desired aid, for there are no means in our power either to remove the water or to purify it. It is contended that odors do not cause disease, but such intense ones as are here produced will at least lower the resistance of the body by destroying nutrition. Appetite is destroyed, as is often the power to retain food that is eaten. At night the odors are so bad that the windows and doors of houses must be closed, people preferring the close, stifling air of a heated house rather than smell the intense odors coming from the overflow. This, for those used to sleeping in the open air, can not be otherwise than detrimental. Looking at it from a sanitary as well as from a financial standpoint, a broad and statesmanlike policy of reclamation and river improvement should be adopted. Otherwise the inhabitants living on the borders of these large tracts of overflowed lands will, owing to a lowered vitality, be more subject to disease, if indeed they are not entirely driven from their homes.

SANITARY ASSOCIATIONS.

Believing that in the battle with unsanitary conditions, organization is of as much importance as in any other contest, the State Board of Health began the formation of sanitary associations. The advantages of these will be recognized by any one who has had occasion to observe the indifference with which many of the most important steps for the prevention of disease are carried out. Isolation, disinfection, vaccination, prevention of the pollution of water supplies, the care and destruction of sewage, and the numerous other questions which come before a health officer are as sealed books to some of them. They are subjects that were not taught them in school, and their attention has never been given actively to the consideration thereof. By associating with the more active, earnest officers and by listening to the papers and taking part in the discussions, the less informed officers grasp the necessity for further knowledge and oftentimes make excellent officials.

The first association formed was the California Public Health Association, which has held semi-annual meetings for three years. These have been full of interest, with many excellent papers and discussions. The greatest difficulty met with is to get the health officers in the more remote parts of the State to attend. This is not entirely from want of interest, although some health officers, like some others in official position, seek to get the honors and emoluments of their office with the minimum amount of labor. Most of them are busy practitioners and get but small pay for their services as health officer, and consequently can not afford the expense of a long journey to attend the meetings. To obviate this in a measure, the Board invited the health officers of the San Joaquin Valley counties to meet at Fresno during the last summer, and organized the Central California Health Officers' Association, and it is intended to organize others in the near future. This will bring them together more, but still many will not attend.

The absence of any of our health officers from these meetings is a distinct loss to the communities which they represent, for the subjects discussed are all pertinent and apply to every county and town in the State. The people would be the gainers if their health officers could attend and acquire knowledge which would be used in their several jurisdictions. In some of the Eastern States these associations are part of the State health organization, the same as teachers' institutes are part of the school system. This brings together each year all the health officers of the State, so that instruction can be given them, topics of general interest discussed, uniformity of action assured, and mutual assistance rendered.

We recommend that a law be enacted requiring each county and municipality to send a delegate from its health board to the meetings of the State association, his necessary expenses to be paid from the county or city treasury.

EXAMINATION OF SCHOOL CHILDREN.

There is no doubt that many children fail in school and in life because of a remediable defect in some organ or organs. That these defects should be allowed to go uncured or untreated and the children become dependents on society does not speak well for the judgment of the State, but such is the fact in most parts of California as well as elsewhere. A start has been made, however, and we may soon expect to see every child in our schools regularly examined, not only for defects in sight and hearing, but also for others that may be equally as bad. The examinations should go further than to discover organic defects. The examiner should be expected to watch the general condition of the children and to judge as to their physical ability to continue a certain course of study. This should be done by the municipalities. The State is helping to educate several thousand orphans, and to these it owes the same care that the municipality should give its children. Indeed, the need is greater, for the circumstances under which these wards of the State have been reared are less fortunate. Arrangements should be made whereby each one of these unfortunate children could be carefully examined, and when found to be in a condition needing treatment such treatment should be furnished.

The following article by A. J. Pillsbury, Secretary of the State Board of Examiners, relating to these wards of the State, meets our hearty approval, and we respectfully recommend the enactment of effective laws carrying a sufficient appropriation for this purpose:

HELP FOR THE HANDICAPPED.

What farmer, if he have a scrawny, wobbly pig delivered with a litter, will not straightway take that pig to the house, fix up a nursing bottle for it and so attend to its health that it will soon be able to take its place with its fellows at the maternal repast and in the trough, squealing and struggling as lustily as its brothers and sisters? What chicken grower, if he find a weakling hatched out with a lusty brood, will not coddle the weakling against a warm brick behind the kitchen stove until it gains strength to struggle for its own existence with its downy companions?

I want the juvenile wards of the State of California as well looked after as though they were so many candidates for pork barrel and gridiron, and for a not very dissimilar reason: It pays.

In the main, with here and there a notable exception, the dependent classes are recruited from the ranks of the handicapped. These are they who fill the hospitals for the insane, the prisons and reformatories, the homes for feeble-minded and, in a very considerable number, the orphanages.

The young men, of college age, confined in Elmira Reformatory, New York, average in stature about the same as young women in a female seminary, or four inches shorter than college men of the same age. There have been instances where nature has packed fine, strong minds into craniums supported by small and badly nourished bodies, but these were nature's freaks and not her normal and usual product. As a blunt fact, the dwellers below the prosperity line are dwarfed in body and mind, defective in one or more organs and deficient in vitality.

I do not make these statements in aid and comfort of those devotees of the doctrine of heredity who are often as desirous of laying their own shortcomings at the doors of their ancestry as they are of holding the horrors of hereditary tendency up before the bleary eyes of their bibulous neighbors, the better to convict them of sin. There is a deal of truth in the doctrine of hereditary tendency, vital, appalling truth, but the mischief wrought by it is, in many if not in most cases, susceptible of being remedied by timely treatment and painstaking nurture.

Prof. George R. Leslie, Director of the Science Department of the city schools in Los

Angeles, has undertaken to make a physical examination of all applicants for entrance into the public schools of that city, and his investigations, so far as they have gone, show that twenty-five per cent of all applicants are physically defective in hurtful degrees—in degrees that, unless remedied, will handicap such children throughout their lives.

I have no doubt that the percentages of deficiencies among the State's orphanage wards will rank much higher. The public school children of Los Angeles come in the main from families whose standards of living are above the poverty line. The orphanage children all come from families below the poverty line, else they would not, or should not, be in an orphanage. They are the handicapped product of a handicapped parentage, and therefore doubly demand all that science and nurture can do for them.

What chance has a child to develop into a healthful and helpful citizen if a near-sightedness be permitted to contract its distinct vision to within a range of twenty inches, beyond which distance all things are seen as they are not instead of as they are? What chance has such a child for the forming of correct judgments and for seeing life as it is?

What chance has a child whose defective hearing makes it miss half that is said and heard by others, half that goes on in recitation and on the playground—the most valuable recitation room of all?

What chance has a child for developing a virile constitution when adenoid growths in its throat shut out half the breath from the lungs, leaving the blood scantily aërated, the chest half expanded?

What chance has a child for normal development when its teeth are permitted to so rot that it becomes as nearly toothless at fourteen as it should be at forty-five, when every mouthful of food sent to the stomach is tinctured with the poison of decay, and when every breath inhaled is as heavily laden with putridity as every breath breathed into the faces of his nauseated companions?

What chance has a child for developing a self-confident and courageous character when its bandy legs and knock knees make it the laughing stock of the playground, when its teeth are allowed to grow out like tushes, disfiguring the countenance, when the child has no strength with which to measure its playmates, no endurance to bear a robust part in their games, and when it has nerves which people dark corners with spooks and dark nights with goblins?

Fortunately for handicapped childhood, physical deficiencies are often if not generally remediable, if taken in time. The New York Foundling Hospital (Catholic) has gone at this work with a degree of enthusiasm and intelligence that is positively inspiring. Every child that comes into its custody is submitted to a rigid examination, and, if such examination develops the fact of remediable deficiency, those deficiencies are treated with the highest skill the great metropolis affords. Some of the most proficient surgeons in the city volunteer their services, bandy and bow legs are broken and set straight, tonsils removed, paralyzed nerves sutured, and all things done that science knows how to do to relieve the wards of the State of handicaps under which, otherwise, they must run their respective races of life in competition with other persons who are weighted down with no such burdens.

In many of the states east of the Rocky Mountains juvenile wards of the State are looked out for efficiently in this regard. In Iowa, members of the faculty of the medical department of the State university visit institutions, at the cost of their expenses only, for the purpose of making examinations, and hospital cases are taken to the university hospital for treatment. Michigan follows a similar policy, and the Massachusetts general hospital receives numberless cases coming under this classification.

I do not doubt that as many as one third of the more than five thousand dependent children in the orphanages of California are handicapped by physical deficiencies in one form or another, the greater part of which might be remedied by proper treatment, either surgical, medical or hygienic, and, if we include bad teeth, I think that the percentage of defectives will total one half.

The teeth of children are greatly neglected, not only in institutions, but in family life, and to the serious detriment of the children. Nature, in healthy children, absorbs the milk teeth from within the gum without decay, but if a child have a low vitality teeth decay from without. Decay is always poisonous, and a mouth full of rotten teeth means malnutrition, malnutrition means a badly nourished brain, and a badly nourished brain means either a delinquent or a backward child, and generally a child that is both morally delinquent and intellectually backward.

As if physical deficiencies were not a sufficient handicap, it is a fact of common experience that the consciousness of inferiority, physical or intellectual, weighs down the spirits and gives rise to a morbidity of mind that is even more grievous to be borne than the handicaps themselves. Such a consciousness discounts enterprise, fosters the habit of brooding, turns the channels of thinking inward instead of outward, develops a mind full of all unhealthfulness, resulting in inefficient if not bad citizenship, and not infrequently in insanity.

To the credit of our orphanages be it said that they all have more or less of medical attendance and supervision, but, notwithstanding this fact, they are lacking in such a close and systematic medical attention as their wards require. If a child is sick a physician is summoned, and if a tooth aches it is pulled, but there is no such keen scrutiny into physical conditions as the situation demands.

The fact is that the ordinary medical practitioner does not rise to the full requirements demanded. No one less observing than a trained specialist in childish deficiencies will detect, or realize, the importance of deficiencies that are really serious, if not to life, at any rate to efficient living.

In my judgment the State of California should employ one or more experts in children's diseases, preferably a man and a woman, to devote themselves to the juvenile wards of the State in orphanages and in industrial schools. Each child should be stripped to the buff and examined in every particular, deficiencies diagnosed and treatment prescribed. Attention should also be given to sanitary conditions and to diet, to physical training and mental discipline in special cases.

To make this work effective it may be necessary to establish a small children's hospital in connection with the medical department of the State University, or else make proper arrangements for treating hospital cases at public expense in reputable institutions throughout the State.

The general service herein outlined might properly be performed under the guidance of the State Board of Health, or if there be fear of unwholesome political influences being brought to bear upon the work through that instrumentality, then let the service be required of the medical department of the State University. Whoever is made agent of the commonwealth for the performance of this function should be endowed with ample powers, not only for ascertaining what should be done, but also for doing the needful thing when it has been ascertained. Personally, I do not fear the prostitution of the office to political influence if confided to the State Board of Health, but the medical department of the State University would perhaps give greater promise of permanency and a continuing service.

I favor the State of California entering upon the service herein outlined, because it will pay the State to do it. There are humanitarian considerations which do, in fact, outweigh all other considerations, but the fact that it will pay, at once and roundly, is more likely to appeal to the practical mind. Criminality is enormously costly, and pauperism and insanity only less so, and it can not be denied that the ranks of criminality, pauperism, and insanity are mainly recruited from among those who are handicapped from birth by physical deficiencies and abnormalities, many if not most of which are, in the light of modern science and nursing, clearly remediable.

Furthermore, the State is the ultimate guardian of all of its wards, and it should either assert its power and authority more abundantly or abandon it altogether. A divided responsibility is always productive of inefficiency. The orphanage people throughout the State will be found ready to coöperate heartily and not unintelligently, but inasmuch as the State now pays only about three fifths of the cost of taking care of dependent children these institutions can not well be required to do more than they are now doing. This consists mainly in housing, feeding, and clothing their charges and imparting to them such lessons in industry, culture, and religious instruction as they are able to receive in their present physical and mental condition.

If the services outlined above shall come to be performed for the institutional wards of the State it will prove an object lesson of such incalculable value to childhood in general that it will be no long time before all public school children will be given as good advantages in this respect as the State shall see fit to give to the children of the impoverished and the negligent. An aroused public conscience will not rest satisfied until, in California, everybody's children are as well cared for as nobody's children are cared for in that great institution in New York devoted to the care of the nameless product of unrestrained licentiousness.

A. J. PILLSBURY,
Secretary of State Board of Examiners.

SANITARY INSPECTION OF STATE BUILDINGS AND INSTITUTIONS.

The law requires that the State Board of Health shall have sanitary control of all buildings or places owned, leased, or controlled by the State, and that all plans and specifications, in so far as they relate to sanitary matters, must be approved by it. This has given the Board much extra work, there being no provision for an expert engineer to do these duties. The Board has, however, done the work to the best of its ability, and has been able to make suggestions whereby the sanitary condition of new buildings has been improved.

This is one of the most important duties of the State Board of Health, for besides the danger of unsanitary conditions in new buildings, there is annually a large expenditure for remodeling. There should be attached to the Board an expert sanitary engineer. We have two score of public institutions, and there is constant demand for more, and especially to increase the extent of those already in existence. Money would each year be saved the State were such an officer attached to the State Board of Health. It is impossible for a person not an expert to properly inspect plans and decide on their merits, and after this is once done, under the present system, the duty of seeing that the plans are carried out devolves on the architect. He is undoubtedly honest, but is sometimes long absent from the work, and experience has shown that the State has often suffered thereby. Reconstruction work is often done by the institution from its contingent funds, and the expense of getting some one to supervise the work is quite large. This could be saved by provision being made for such an officer as above recommended, and the saving would no doubt be equal to his salary. Besides this, there is a vast amount of service he would be able to render the smaller cities and towns which are seeking to improve their sanitary conditions but have no engineer. They naturally look to the State Board of Health for all the advice and aid they need. We invariably give the best we have, but having no engineer the Board can not possibly do all that should be done. Such an officer, by visiting the different towns and inspecting their sanitary conditions, would be able to make suggestions that would save the lives of many of the State's inhabitants, and we earnestly urge the creation of such an office.

Stockton State Hospital.

The general management of the institution is excellent, the halls and wards are clean, the food good and nourishing, and the patients in good condition. The toilets and bathtubs, however, are pretty nearly all they should not be. Put in many years ago they are well-worn relics of a former age, and with the plumbing should as soon as possible be replaced with modern fixtures.

We must call attention to the utter lack of modern modes and facilities, not only in this institution but in all others of the same kind, for treating and observing the acute insane. Observation pavilions should be erected for the purpose of watching the new cases as they come into the hospital. The treatment of to-day for the insane is the electric light and the hydrotherapeutic. At present there are absolutely no ways of giving these kinds of treatment. We recommend these improvements, knowing that they would be of great benefit to the patients and a vast saving to the State by quickly curing a great number of cases.

The female side of the hospital is worthy of special mention. The walls are hung with pictures, and potted plants in the halls give to them a freshness and homelike air that must be pleasant to the sick minds of the patients.

The new farm of 500 acres is a fine addition to the hospital facilities, and will make an excellent place for outside colonies of patients.

Mendocino State Hospital.

The general sanitary condition of this institution is good. The halls and wards are clean and free from odor, and the health of the inmates excellent. The septic tank which was instituted three years ago has worked night and day without attention or expense, and it is a complete success. The reservoir has been cleaned and enlarged, so that the supply of water is better than two years ago.

The dairy is still excellent, but the same need of new up-to-date dairy buildings exists, and we repeat the same recommendation made in our last report, for an appropriation sufficient for this improvement.

This was the first State hospital in California to install an outdoor department for any class of patients, and its success has been such that all the others should follow the example. This question is of such vital importance to the health of the patients that we quote extensively from the report of Dr. King, Superintendent of the Hospital:

"*Tent Life at the Hospital.*—The tent plant, which consisted originally of seven tents, has been enlarged by the addition of five wooden structures built of 2 by 3 surfaced studding covered with double-surfaced rustic so as to be painted on both sides. These wooden structures are 9 feet high on the sides, the roof being shingled. They are built with ventilators of sufficient capacity so that when open the air of the room will be pure and fresh. One of these buildings we use for a sitting-room, one for a dining-room, one for a dormitory, one for a hospital, and one for the attendants.

"The wooden buildings are somewhat more costly, but they will last much longer than the canvas and are better adapted to the class of patients (chronic insane) which we have under treatment there. Around the whole we have a 6-foot smooth woven-wire fence, inclosing about 2½ acres of ground. This camp is conveniently located near the hospital and is connected with our water, electric light, steam, and sewer systems. Food is furnished from the main kitchen. Within the inclosure are plenty of shade trees, sunlight, and pure fresh air.

"We have in this camp at present 69 patients, which is a little more than it was designed to hold. The results of treatment at this camp during the last year show that outdoor life is not only better for tubercular patients, but also for those who are mentally unsound, and I might add for the sane as well.

"Dr. R. A. Cushman, First Assistant Physician, who has had charge of this camp since it was opened, reports as follows: 'The general health of the outdoor patients has been better than that of those who sleep on the wards. No cases of lung or bronchial inflammation have so far occurred in camp, while our greatest mortality during the winter months on the wards is from pneumonia. This is not said to cast any reflection on the sanitary condition of the wards, for they are well kept and well ventilated, but rather to show that patients who spend most of their time out of doors are remarkably free from colds and from bronchial and lung diseases.'

"It has also been found that old men and the demented patients who are inclined to be filthy have markedly improved when given an opportunity to have a continuous outdoor life. Their general health is much improved, they are more cleanly in their habits, and are much more contented and happy than when confined to the wards.

"This camp, which can easily accommodate sixty patients, was built at a cost of $3,600, or $60 per bed, about one tenth of the cost of beds in ward buildings.

"Since the camp was opened three tubercular cases have become sane, and have been discharged. At the time of their discharge they had no fever, no cough, the chest dullness had practically disappeared, and they had increased in weight. At the present time we have three active tubercular cases and twelve tubercular cases improved. None of the improved cases have had any fever for several months; they have no cough, and most of them are gaining in weight. All the demented cases in camp have shown marked improvement, except the cases of paresis, and we think that even in these cases their lives have been much prolonged.

"This tent plant, which was built for the accommodation of our male tuberculous cases, has proved of great value to that class. It has done more: it has demonstrated its value as a place for the care and treatment of a large class of our chronic insane, and I can see no reason why, with some modification, acute cases could not be cared for in the same manner and with advantage to the patients. In our California climate such buildings could be utilized for a farm colony of chronic cases and for epileptic colonies, with great benefit to the patients and economy to the State. In these tent colonies everything that reminds one of a prison is eliminated. The patients have more freedom; there is no lock except the one on the gate entrance, and this is simply to keep the old and demented patients from wandering away."

Napa State Hospital.

This hospital now contains 1,600 patients, the largest number it has ever had. The buildings are becoming crowded, and additions should be made thereto, as the prospects are that more and more patients are coming. The institution is kept right up to its best in every way. The food is excellent, the quarters are kept scrupulously clean, and the sanitary necessities are all that modern plumbing affords. The system of plumbing which was installed last year seems to be perfect. Dr. Stone has in contemplation the erection of detention and observation cottages, to which all new patients will be assigned for the purposes of observation and treatment. All modern appliances for the treatment of the insane, such as steam and hot-air baths, apparatus for electric and electric-light treatments, etc., are to be installed, and are recommended as an urgent necessity by this Board. The water supply will be much improved and increased when the new dam, which is now in process of construction, is completed. The dairy is in excellent condition and well taken care of. We recommend the isolation of tuberculous patients and their outdoor housing just as soon as it can possibly be accomplished.

Southern California State Hospital.

This hospital has been greatly improved since our last visit. A new administration building has been added, with the officers' rooms, superintendent's offices, trustees' rooms, visitors' waiting-rooms, library, officers' dining-room, etc., on the first floor; bacteriological laboratories and attachés' dining-room in the basement. The second floor is used for the sleeping apartments of the resident physicians and other officers, for guest chambers and bathrooms; the top story is given over entirely to patients. The impression on entering this new building is a very pleasant one and takes away all feeling of entering an insane asylum; it is more like entering a beautiful country hotel.

This institution has improved very much under the management of Dr. Williamson, and bids fair to rival any of our State hospitals. There are now over 800 patients in the hospital and they are constantly on the increase. Like other institutions of this kind, the Southern California State Hospital is badly crowded and needs more room. When the tuberculous patients are housed in tents and open-air pavilions there will be more room in the buildings for other patients.

Detention and observation pavilions for the purpose of diagnosing and treating new cases are necessary for carrying on good work at this institution, and are recommended as important by this Board.

The septic tank has been a perfect success, it being practically odorless and its contents making an excellent fertilizer.

The hogpens deserve special mention. They contain about 400 hogs. The hogs and the pens are kept in perfect sanitary condition.

The dairy is still in a condition which might be improved upon.

State Hospital at Agnews.

This hospital was destroyed by the catastrophe of April 18, 1906, and will have to be entirely rebuilt. This should be done only after careful consideration of all the elements entering into the wellbeing of such an institution. The welfare of the patients is of the first consideration, expense second, and pride last. It is the belief of this Board that buildings intended for the care of the insane should be built far more simply than has been the practice in the past. In the tent ward at Ukiah, where the cost of structure is only $60 per bed, better results are being obtained than in the large buildings that cost $600. Manifestly there efficiency and economy go hand in hand, and only pride would suggest huge piles of brick or stone. It is not necessary to sacrifice taste and beauty, for they can go with more modest buildings, as cheapness does not indicate a want of taste. In small buildings, where the patients will be under less restraint, and where they can be better segregated, their mental sickness will more rapidly disappear and a saving be made to the State.

Home for Feeble-Minded Children.

This institution was badly damaged by the earthquake, but none of its inmates were seriously injured, and they are now being cared for in temporary barracks where they get a large supply of fresh air and light. Their health, as would be expected, is excellent, and is proof of the folly of erecting huge piles of brick and stone, where rooms and halls get little air and less sunlight. From the standpoint of economy, as well as from that of sanitation and efficiency, the style of hospitals should be changed.

The general sanitary conditions are good. There is great need of more water, but when the new reservoir, now in process of construction, is completed this will be supplied.

In Stoneman Hall, where the lower grades of inmates are kept, there is great need of a covered platform, with sides of glass that could be removed in the summer season, where the unfortunates can play in the sun and air.

The sewer system is being improved. A septic tank was partially installed two years ago, but it was never completed. A small appropriation should be made to complete this work and make it perfect.

The dairy building has been improved since last report, but can never be made satisfactory. An entirely new milking-shed and milkhouse should be built, so that the milk, which is the best food the children can have, can be kept pure and clean.

State Prison at Folsom.

The general high sanitary standard of this prison has been maintained since the last report, and there is little to criticise adversely or improvements to suggest.

State Prison at San Quentin.

With buildings old and dilapidated, with plumbing and drainage put in before sanitary science was developed, and with a limited water supply, that there is not more sickness than there is speaks well for the efficiency of the management. It is needless to go down the list of criticisms where there is so little good to be found, especially as complete reconstruction has been decided upon and commenced. The management has done everything possible for good sanitary conditions, but it is handicapped by old and wornout buildings.

State Capitol.

The last Legislature made a large appropriation for the purpose of remodeling this building, and it is now in process of reconstruction. When completed it will be well ventilated, well drained, and clean, and can be easily kept in a sanitary condition.

Whittier State School.

This school is in about the same condition we found it two years ago. A great many improvements could be made in the line of plumbing, furniture, interior comfort, gymnasiums, bathing facilities, swimming tanks, etc., which would add to the utility of the institution. The girls' department seems to be very much superior in equipment to that of the boys. An ice plant is absolutely necessary. Although it was recommended in our last report, no steps toward establishing one have been taken. The temperature at Whittier is very high during the summer months, and milk, meat, vegetables, etc., decompose very rapidly, and an ice plant would be a great saving to the institution.

The sanitary conditions and appliances are pretty good, but could be improved upon. The septic tank disposes of the sewage to good satisfaction.

On our last visit we found that the boys had been taken to Catalina Island for a three weeks' outing, where they live in tents and are boating, swimming, and fishing all day. This outing takes place every year, and when the boys come home the girls are sent to the island.

Preston School of Industry.

Two years ago we earnestly recommended an ice plant and a septic tank for the school, and renew it with increased emphasis now. The ice plant from the standpoint of economy as well as of health, and the septic tank as a protection to life. The State should not violate its own laws nor poison its own people.

Institution for the Deaf and the Blind.

For cleanliness and order this institution can not be beaten anywhere, and from a sanitary standpoint no suggestions are needed. A septic tank to destroy the drainage from the stable is being considered, and if successful will remove the worst feature of the place. The dairy building is one of the best in the State, and by the installation of cement feed boxes, which could be flushed clean daily, would be about perfect.

State University.

The sanitary conditions of the State University at Berkeley have been materially improved since the last report. A new and complete sewer system has been put in and the old plumbing of the buildings is being gradually replaced with new.

Our recommendation of two years ago, that a hospital for the students be furnished, has been followed, and in a short time a complete one will be at their service, supported by a small fee charged to each. This, from the point of view of a health board, is a most important improvement.

California Polytechnic School, San Luis Obispo.

This is the latest State educational institution, and from a sanitary standpoint there is little to criticise.

Industrial Home of Mechanical Trades for Adult Blind.

This is perhaps as poorly equipped as any of the State institutions. The buildings are old and overcrowded, and the plumbing is very unsatisfactory. For the want of room, some of the inmates are obliged to sleep in halls that are almost without light and ventilation. While light is unnecessary for the blind in the matter of vision, it is absolutely necessary for health that every sleeping apartment have a goodly amount of sunlight. These halls have practically none. That the institution has little sickness among its inmates and no zymotic diseases, speaks exceedingly well for its management, but the time may come when even good management and care can not offset the want of nature's purifiers and disinfectants—air and light.

The new shops which are so greatly needed will be built shortly, when one great danger to the lives of the inmates will be done away with. There is great need for a new building, as the present ones are too full for healthful conditions, and the large waiting list requires that it be built.

Veterans' Home at Yountville.

There can be no adverse criticism on the management of this institution in sanitary matters. Every precaution is taken to guard the health of the old soldiers. The food is good and well cooked; the tables and barracks clean. The tubercular inmates are segregated and the hospital is well kept. While the dairy buildings are all of wood, they are kept scrupulously clean. The reserve water supply is not as large as it should be for the proper protection of the institution, and the dam should be enlarged. The sewage, while not a menace to the health of the inmates, is a source of danger to the people below, as it flows into a small stream which empties into the Napa River. This river is a source of domestic water supply, and typhoid fever has prevailed among those using it. There is an excellent location for a septic tank and filtration plant, and this should be installed at once. The State has no right to violate its own laws, and jeopardize the lives of its inhabitants. Already threats have been made to enjoin the State, and we recommend and insist that an appropriation be made to install such a plant.

State Normal School at San Francisco.

One good result of the fire in San Francisco was the destruction of the old Normal School building. A new one will soon take its place, and we will then have the satisfaction of knowing that teachers are being instructed in sanitary surroundings.

State Normal School at San Diego.

Sanitary conditions are good. Ventilation, drainage, light, and air are all we could desire.

State Normal School at San José.

This institution was so badly damaged by the earthquake of April 18 that it will have to be reconstructed.

State Normal School at Los Angeles.

The general sanitary conditions of the school are fair. The plumbing seems to be in good condition. The warm air that is used for heating the various rooms is drawn through several layers of coal that is kept damp, and in this manner the dust and other noxious materials are removed before the air enters the school rooms. The foul air is also removed from the rooms. The school has a well-organized gymnasium for the development of physical strength.

State Normal School at Chico.

The sanitary conditions are good and no appropriations are specially needed at the present time for this purpose.

Respectfully submitted.

MARTIN REGENSBURGER, M.D.,
President,
W. A. BRIGGS, M.D.,
Vice-President,
N. K. FOSTER, M.D.,
Secretary,
F. K. AINSWORTH, M.D.,
A. C. HART, M.D.,
O. STANSBURY, M.D.,
W. LE MOYNE WILLS, M.D.,
State Board of Health.

FINANCIAL STATEMENT.

FUND FOR TRAVELING AND CONTINGENT EXPENSES.

Statement Showing Condition of Appropriations for Traveling and Contingent Expenses of State Board of Health for Fifty-sixth and Fifty-seventh Fiscal Years.

FIFTY-SIXTH FISCAL YEAR.

By amount appropriated	$1,500 00
By balance, etc.	464 11
	$1,964 11

To warrants drawn in favor of State Board of Health, as follows:

No.	Date—1904.	Amount.
360	July 7	$10 30
462	July 13	7 75
631	July 21	28 55
632	July 21	12 95
682	July 26	4 90
1028	July 30	4 76
1495	Aug. 9	17 75
1552	Aug. 13	16 80
1690	Aug. 19	26 10
1726	Aug. 23	18 35
2388	Sept. 2	28 20
2389	Sept. 2	5 05
2586	Sept. 12	15 20
2746	Sept. 20	29 00
2747	Sept. 20	7 25
3710	Oct. 19	15 00
3837	Oct. 24	32 15
4405	Nov. 1	23 85
4461	Nov. 3	10 40
4585	Nov. 12	26 15
4858	Nov. 28	18 75
5471	Dec. 1	33 15
5704	Dec. 9	21 24
5894	Dec. 17	78 45
6122	Dec. 30	74 40
	1905.	
7834	Jan. 12	19 50
8683	Jan. 18	9 75
10055	Jan. 28	19 75
13140	Feb. 21	71 00
15949	Mar. 10	12 90
16775	Mar. 24	31 70
16995	Mar. 30	9 20
17756	April 8	73 79
17819	April 12	14 45
18126	April 27	118 72
18893	May 3	49 50
19096	May 10	23 25
19097	May 10	15 00
19114	May 12	101 75
19389	May 26	86 50
20174	June 7	115 40
20341	June 13	21 10
20401	June 17	29 70
20515	June 28	191 65
113	July 5*	345 90
769	July 28*	37 08
		$1,964 04
	Balance	07
		$1,964 11

FIFTY-SEVENTH FISCAL YEAR.

By amount appropriated	$2,500 00

To warrants drawn in favor of the State Board of Health, as follows:

No.	Date—1905.	Amount.
205	July 11	$20 90
565	July 20	19 40
1417	Aug. 5	105 75
1699	Aug. 14	46 43
1773	Aug. 16	10 10
1943	Aug. 29	21 75
2265	Aug. 31	100 90
2600	Sept. 6	16 60
2751	Sept. 14	30 50
2752	Sept. 14	10 00
2993	Sept. 22	99 55
3677	Oct. 4	30 40
3932	Oct. 11	20 50
3960	Oct. 13	25 10
4069	Oct. 18	22 10
4235	Oct. 27	15 25
4246	Oct. 31	100 50
4933	Nov. 4	18 80
5070	Nov. 10	26 65
5202	Nov. 14	15 30
5350	Oct. 27	25 80
5891	Nov. 29	119 75
6219	Dec. 11	44 84
6401	Dec. 18	24 40
6570	Dec. 28	24 65
6884	Dec. 30	85 00
	1906.	
7074	Jan. 5	2 50
7237	Jan. 9	26 95
7394	Jan. 11	23 73
7611	Jan. 19	18 20
8120	Jan. 31	18 25
8121	Jan. 31	106 80
8534	Feb. 7	6 95
8896	Feb. 24	28 00
9243	Feb. 28	85 00
9478	Mar. 1	39 30
9706	Mar. 8	39 90
9916	Mar. 26	25 25
10342	Mar. 31	118 40
10606	April 4	12 60
10859	April 17	38 31
10934	April 17	3 10
11609	May 2	85 00
11717	May 9	23 80
11817	May 16	6 85
11892	May 24	17 25
12257	May 31	143 00
12883	June 8	14 15
13606	June 19	30 15
13744	June 30	145 30
		$2,139 66
	Balance	360 34
		$2,500 00

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*Contracted in fifty-sixth fiscal year, and paid in the fifty-seventh fiscal year from funds of the fifty-sixth fiscal year.

CONTAGIOUS DISEASE FUND.

Statement Showing Condition of Appropriation for Prevention of Contagious Diseases.

FIFTY-SIXTH FISCAL YEAR.

By balance of appropriation of March 20, 1903	$81,534 71
To warrants drawn as follows:	
No. Date—1904.	Amount.
624—July 20	$40 00
1008—July 30	1,015 00
2142—Aug. 30	1,015 00
3104—Sept. 30	1,015 00
3838—Oct. 24	75 20
4375—Nov. 1	1,015 00
4721—Nov. 17	48 95
5193—Nov. 30	1,015 00
5584—Dec. 3	68 60
6664—Dec. 31	1,027 50
1905.	
10379—Jan. 31	1,108 92
10407—Feb. 2	30 00
14194—Feb. 28	1,018 35
17298—Mar. 31	450 00
18169—April 29	437 83
18892—May 4	185 00
19753—May 31	445 00
20402—June 17	65 65
20895—June 30	235 00
	$10,311 00
To balance	71,223 71
	$81,534 71

FIFTY-SEVENTH FISCAL YEAR.

By balance of appropriation of March 20, 1903	$71,223 71
To warrants drawn as follows:	
No. Date—1905.	Amount.
1684—Aug. 12	$134 25
2596—Sept. 6	17 25
3681—Oct. 4	11 25
4234—Oct. 27	25 00
1906.	
8126—Jan. 31	75 00
9860—Mar. 20	15 40
10678—April 6	11 65
11567—May 2	36 25
11766—May 15	59 70
11925—May 28	12 50
12506—June 2	133 00
	$531 25
To balance	70,692 46
	$71,223 71

PRINTING FUND.

Statement Showing Amount of Printing Done for State Board of Health during the Fifty-sixth Fiscal Year.

By appropriation for fifty-sixth fiscal year			$750 00
By balance from fifty-fifth fiscal year			337 25
Total			$1,087 25
1904—July—			
300 Monthly Bulletins for June	$15 50	$15 50	
August—			
1,000 Envelopes, No. 9	$5 00		
300 Monthly Bulletins for July	15 00		
		20 00	
September—			
300 Monthly Bulletins for August	$15 25	15 25	
October—			
300 Monthly Bulletins for September	$15 50		
150 Programs	7 50		
		23 00	
November—			
250 Monthly Bulletins for October	$5 50	5 50	
December—			
2,000 Blank Sheets	$1 00		
1,000 Biennial Reports	167 00		
300 Monthly Bulletins for November	6 00		
		174 00	
1905—January—			
500 Monthly Bulletins for December	$7 25	7 25	
February—			
500 Monthly Bulletins for January	$9 75	9 75	
March—			
300 Monthly Bulletins for February	$8 00	8 00	
April—			
150 Programs	$6 50		
300 Monthly Bulletins for March	6 00		
		12 50	
May—			
625 Letter Heads, Typewriter	$3 50		
300 Monthly Bulletins for April	9 25		
500 Birth Certificates	12 50		
500 Supplemental Reports of Births	6 50		
500 Marriage Certificates	12 50		
1,000 Death Certificates, Original	17 25		
1,000 Death Certificates, Duplicate	11 75		
500 Reports of "No Deaths"	5 25		
		78 50	
June—			
2,500 Directions to Registrars of Deaths	$26 50		
40 Board Covers	2 00		
120 Covers	8 75		
300 Monthly Bulletins for May	10 75		
4,000 Envelopes, No. 6¼	12 00		
1,000 Envelopes, No. 9	5 00		
5 Forms for Vital Statistics (electros)	47 00		
3,000 Registration Laws	55 00		
10,000 Chapters Health Laws	317 50		
500 Letter Heads, each member	18 00		
250 Envelopes, No. 6¼, each member	10 75		
4,000 Envelopes, No. 6¼	13 25		
1,000 Envelopes, No. 9	5 00		
2,000 Notices to Undertakers	12 00		
3,000 Rules	95 00		
2,000 Forms, Cause of Death	46 75		
1,000 Registered District Forms	31 25		
500 Letter Heads, Typewriter	1 50		
		718 00	
			$1,087 25

PRINTING FUND—*Continued.*

Statement Showing Amount of Printing Done for State Board of Health during the Fifty-seventh Fiscal Year.

By appropriation for fifty-seventh fiscal year			$1,000 00
1905—July—			
1,000 Reports of "No Deaths"	$3 25		
1,000 Certificates of Death, Original	5 50		
500 Monthly Bulletins for June	15 25		
600 Manila Wrappers	50		
		$24 50	
August—			
2,000 Forms "Cause of Death," and Alterations	$60 25		
1,000 Registered District Forms	23 00		
500 Cards, G. D. L.	3 00		
2,000 Letter Heads, and one-half furnished	4 25		
600 Manila Wrappers	50		
750 Monthly Bulletins for July	36 75		
1,000 Certificates of Birth	4 75		
1,000 Supplemental Reports of Births	3 75		
1,000 Certificates of Marriage	4 50		
150 Blank Sheets	2 00		
		142 75	
September—			
2,000 Registrar's Accounts	$12 50		
30,000 Index Cards	39 00		
2,000 Circular Letters, "Sec. 3077"	7 00		
1,000 Manila Wrappers	1 00		
750 Monthly Bulletins for August	35 50		
		95 00	
October—			
1,000 Manila Wrappers	$1 00		
800 Monthly Bulletins for September	34 50		
		35 50	
November—			
1,000 Manila Wrappers	$1 00		
800 Monthly Bulletins for October	36 75		
		37 75	
December—			
240 Ruled Sheets (furnished)	$0 75		
1,500 Health Officers' Reports	9 00		
1,000 Monthly Bulletins for November	36 75		
		46 50	
1906—January—			
1,000 Manila Wrappers	$0 75		
200 Blank Letter Heads, one half, Typewriter	75		
1,000 Monthly Bulletins for December	27 25		
		28 75	
February—			
500 Letter Heads, Typewriter (furnished)	$2 25		
500 Letter Heads, Typewriter (furnished)	2 25		
1,200 Monthly Bulletins for January	48 75		
		53 25	
March—			
1,000 Monthly Bulletins for February	$31 75		
150 Programs	1 75		
2,000 Certificates of Death, Original	9 00		
37 Death Certificates. Binding	37 00		
		79 50	
April—			
1,000 Monthly Bulletins for March	$28 00		
4,000 Certificates of Death, Duplicate	11 50		
4,000 Certificates of Death, Original	11 50		
		51 00	
May—			
3,000 Certificates of Birth	$9 50		
3,000 Supplemental Reports of Birth	7 75		
3,000 Certificates of Marriage	9 50		
500 Envelopes, No. 6¼, reg.	2 75		
600 Letter Heads, Typewriter, reg. (furnished)	2 50		
19 Death Certificates. Binding	19 00		
39 Birth Certificates. Binding	39 00		
1,000 Monthly Bulletins for April	25 50		
		115 50	
June—			
29 Marriage Certificates. Binding	$29 00		
1,000 Monthly Bulletins for May	25 50		
		54 50	
			$764 50
Balance in fund July 1, 1906			$235 50

VITAL STATISTICS.

VITAL STATISTICS.

BY GEORGE D. LESLIE.

SYNOPSIS OF REGISTRATION LAW.[1]

The main points of interest to the general public in the present law for the registration of vital statistics in California may be summarized as follows:

The County Recorder is the sole local registrar for marriages. The local registrar of births is the City Health Officer in the few cities having freeholders' charters, and the County Recorder everywhere else. For deaths, the local registrar in cities having freeholders' charters is the City Health Officer; in other cities and incorporated towns, the City or Town Clerk; and for the remainder of each county, the County Recorder. When public convenience requires, the County Recorder as local registrar may, with the approval of the State Registrar, appoint subregistrars for designated portions of the county. Registrars are required to furnish without charge a sufficient number of copies of the proper certificate to each person upon whom is imposed the duty of certifying to a birth, marriage, or death. The chief duty of each local registrar and subregistrar, however, is to enforce the vital statistics law in his registration district.

The law applies particularly to clergymen, physicians, and undertakers. Every priest, minister of the gospel, justice, or judge who performs a marriage in this State, must within three days after the ceremony file with the County Recorder as local registrar a certificate properly filled out for the marriage performed by him.

Every physician, midwife, nurse, or other person assisting at a birth in California, must within five days thereafter file a certificate of birth with the local registrar, who is the County Recorder, except in the few cities having freeholders' charters, where the City Health Officer so acts. In case the child is not named when the certificate is filed, the local registrar will deliver to the person reporting the birth a supplemental blank for report of the given name, which must be filled out by the parents, next of kin, physician, or midwife, and returned as soon as the child shall be named, the name being then added by the local registrar to the certificate previously filed with him.

Every undertaker engaged for a funeral is held responsible for obtaining and filing a certificate of death with the local registrar or subregistrar, and securing a burial or removal permit prior to any disposition of the body. The local registrar for deaths is the City Health

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[1] Registration of Births and Marriages, Pol. C. §§3074-3083, as amended, Stats. 1905, Ch. CX, p. 103. Registration of Deaths, Stats. 1905, Ch. CXIX, p. 115, superseding Pol. C. §3084, repealed.

Officer in cities having freeholders' charters, the City or Town Clerk in other cities and incorporated towns, and the County Recorder for the remainder of each county, while subregistrars may also be appointed for designated portions of counties. Ordinarily the undertaker will obtain the personal and statistical particulars required over the signature (or name) and address of a relative or friend of the deceased, though the information may be given by any person, including the undertaker or physician, qualified to supply the facts. Besides the personal and statistical particulars, there is also the medical certificate of death, under which heading the physician certifies to the length of time the deceased received medical attendance, and also to the date and cause of death, including both the primary and immediate and the contributary causes, if any, and the duration of each. Special information is also required for hospitals, institutions, transients, or recent residents. In all cases where death occurs away from the former or usual residence, that residence must be given, together with the length of time at the place of death, and a statement of where the disease was contracted.

It is a misdemeanor for the State Registrar or for any clergyman, physician, undertaker, or other person, to fail, neglect, or refuse to perform any of the duties imposed upon him under the law for the registration of births, marriages, and deaths. It is also a misdemeanor for any local registrar, deputy registrar, or subregistrar to neglect or fail to enforce the provisions of the registration law in his district. At the instance of the State Registrar, the prosecuting attorney or other proper officer of any county or municipality shall forthwith initiate and promptly follow up the necessary court proceedings against parties responsible for alleged violations of the law.

STATISTICS OF BIRTHS: 1905-1906.

Summary.—For 1905-1906, the first year covered by the new birth registration law in California, there were reported a total of 20,909 living births.

San Francisco reported 5,250 births, or 25.1 per cent of all, followed by Los Angeles city, 3,128, and Oakland, 1,397, the cities with the next highest totals being Fresno, Sacramento, San José, Berkeley, Pasadena, and San Diego.

Among the counties, exclusive of freeholders' charter cities, the highest totals are for Santa Clara, 688, Los Angeles, 529, and Fresno, 429, followed by San Bernardino, Riverside, Orange, Tulare, Alameda, Butte, and San Joaquin.

For a State population of 1,784,521 in 1905, estimated conservatively by the Census Bureau method with slight modifications, the 20,909 births in 1905-1906 give a rate of 11.7 per 1,000 population.

The birth-rates are highest for the following cities: Fresno, 29.3; Santa Barbara, 26.9; Pasadena, 25.5; Santa Cruz, 25.0; Grass Valley, 23.7; Berkeley, 19.9, and San Bernardino, 18.6. The rates are also above 15.0 for the cities of Los Angeles, Napa, Watsonville, San José, Vallejo, and Oakland, as well as for the counties of Del Norte, Alpine, Riverside, Modoc, Tulare, Santa Clara, and Stanislaus.

The birth-rate is 14.1 for the twenty cities having freeholders' charters, against only 9.2 for all the rest of the State. Outside these cities where health officers are the registrars it is difficult to make physicians register births, but, nevertheless, several County Recorders as registrars for rural communities have secured complete returns.

The 20,909 babies included 10,835 boys and 10,074 girls, the per cent male being 51.8 and female 48.2. The white babies numbered 20,537, or 98.2 per cent of all, while there were 156 Japanese, 141 Chinese, 70 negroes, and 5 Indians.

No marked differences appear between localities, either in the proportion of the sexes or in the race distribution, though there are great differences in the nativity of the white mothers, especially between sections north and south of Tehachapi, and also between the metropolitan area and the rural counties.

The nativity of the 20,537 white mothers is as follows: Born in California, 7,683, or 37.4 per cent; born in other states (including 172, or 0.8 per cent, of unknown nativity), 7,478, or 36.4 per cent; and foreign born, 5,376, or 26.2 per cent.

South of Tehachapi the great bulk of the white mothers, 59.6 per cent of all, were born elsewhere in the United States than California. But north of Tehachapi, especially far north, the bulk were natives of the Golden State, the per cent born here being 54.7 for Northern California and 43.2 for Central California.

In Northern and Central California, except in San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), the per cent of white mothers born elsewhere in the United States than California is much greater than the per cent foreign born. For the metropolitan area, comprising San Francisco and the other bay counties, the per cents born in the Golden State and in other States are lower than for the rural counties of Northern and Central California. Conversely, the per cent foreign born among the white mothers is much higher for the metropolitan area than for the rural counties.

City and County Totals.—In accordance with the law of 1905, requiring all County Recorders and the Health Officers of the twenty cities having freeholders' charters, as ex officio local registrars, to transmit monthly to the State Registrar the original birth certificates filed with them, there have been registered in the State Bureau of Vital Statistics a total of 20,909 living births, 10,652 for the last half of 1905 and 10,257 for the first half of 1906. The destruction of over half a month's records for San Francisco in the fire of April 18-20, and the incomplete registration of births in the confused times succeeding this calamity caused the half-year total for that city to fall from 3,309 in 1905 to 1,941 in 1906, and also explains the slight falling off in the State total, the number of births registered outside the metropolis being considerably greater for the first six months of 1906 than for the last six months of 1905.

For births, the registration districts are cities having freeholders' charters, the rural portions of counties containing these cities, and rural counties without any such cities. Of the total 20,909 living births reported for the fiscal year 1905-1906, as many as 5,250, or 25.1 per cent of all, were registered in the City and County of San Francisco, notwithstanding the effects of the great fire in April. Among the freeholders' charter cities Los Angeles is second, with 3,128 living births for the year, and Oakland is third with 1,397. The next highest city totals reported to the State Bureau are: Fresno, 390; Sacramento, 389; San José, 379; Berkeley, 370; Pasadena, 287, and San Diego, 238. Between 100 and 200 living births were registered in Grass Valley, San Bernardino, Santa Barbara, Santa Cruz, Stockton, and Vallejo, and less than 100 for the year in Napa, Salinas, Santa Rosa, and Watsonville. Eureka is the only city having a freeholders' charter for which no vital statistics at all were reported in 1905-1906.

The highest totals for rural counties or the rural portions of counties with freeholders' charter cities are as follows: Santa Clara (outside San José), 688; Los Angeles (outside Los Angeles city and Pasadena), 529; Fresno (outside Fresno city), 429; San Bernardino (outside San Bernardino city), 349; Riverside, 341; Orange, 327; Tulare, 297; Alameda (outside Berkeley and Oakland), 288; Butte, 244, and San Joaquin (outside Stockton), 227. Between 100 and 200 living births were registered in the following rural counties or portions of counties: Calaveras, Contra Costa, El Dorado, Kern, Madera, Marin, Mendocino, Monterey (outside Salinas), Nevada (outside Grass Valley), Sacramento (outside Sacramento city), San Luis Obispo, San Mateo, Santa Barbara (outside Santa Barbara city), Shasta, Siskiyou, Solano (outside Vallejo), Sonoma (outside Santa Rosa), Stanislaus, and Ventura.

In considering the rank of cities and counties in births reported, it should be understood that the returns are affected not only by the number of living births which actually occurred, but also by the proportion of those which occurred that have been duly registered as required by law. Comparison of the returns for various registration districts indicates that there are marked differences between the districts in the extent to which local registrars have secured a thorough enforcement of the registration law or in the extent to which physicians and midwives have obeyed the law by promptly registering all births.

Birth-rates.—This appears clearly when birth-rates are considered. In order to calculate rates the population of California in 1905 has been estimated conservatively according to the Census Bureau method by adding to the population in 1900 five tenths of the increase between 1890 and 1900, except that for the few counties showing decreases between the last two Federal censuses the population in 1900 has been taken for 1905. For the three principal cities arbitrary estimates have been made because of their exceptionally rapid growth, the estimate for San Francisco in 1905 being 450,000, for Los Angeles 180,000, and for Oakland 90,000. The variations from the standard method made by the Census Bureau in published estimates for Berkeley and San Diego have also been followed, while for other cities the same method of estimating population has been applied as explained above for counties.

For a State population, thus estimated, of 1,784,521 in 1905, the 20,909 living births reported for 1905-1906 give a birth-rate of 11.7 per 1,000 inhabitants. This is surpassed or equaled by the birth-rates for the thirty-one registration districts shown in the table below, the districts being arranged in descending order of birth-rates. The word "rural" after a county indicates that the figures relate to the county exclusive of its freeholders' charter city or cities. For the information of those interested in comparing birth-rates, or checking the calculations, the table gives the estimated population, 1905, and the living births, 1905-1906, as well as the birth-rate per 1,000 population.

TABLE 1.—*Registration Districts with Birth-rates above or equal to the State Average (11.7): 1905-1906.*

REGISTRATION DISTRICT.	Estimated Population: 1905.	Living Births: 1905-1906.	Birth-rate per 1,000 Population.
Fresno city	13,295	390	29.3
Santa Barbara city	6,949	187	26.9
Pasadena city	11,235	287	25.5
Santa Cruz city	5,681	142	25.0
Grass Valley city	4,801	114	23.7
Berkeley town	18,600	370	19.9
San Bernardino city	7,219	134	18.6
Del Norte county	2,408	43	17.9
Alpine county	509	9	17.7
Los Angeles city	180,000	3,128	17.4
Riverside county	20,140	341	16.9
Napa City	4,036	68	16.8
Modoc county	5,121	85	16.6
Watsonville city	4,218	69	16.4
San José city	23,220	379	16.3
Tulare county	18,375	297	16.2
Vallejo city	8,778	141	16.1
Santa Clara county, rural	43,102	688	16.0
Oakland city	90,000	1,397	15.5
Stanislaus county	9,550	147	15.4
Fresno county, rural	29,784	429	14.4
Orange county	22,750	327	14.4
San Bernardino county, rural	24,222	349	14.4
Butte county	17,117	244	14.3
Madera county	7,247	103	14.2
El Dorado county	8,986	124	13.8
Lake county	6,017	82	13.6
Santa Barbara county, rural	13,575	180	13.3
Sacramento city	30,732	389	12.7
San Diego city	18,900	238	12.6
San Francisco city	450,000	5,250	11.7

In addition to the districts ranked in the above table, the only ones with annual birth-rates of at least 10.0 are Santa Rosa city and the counties of Calaveras, Marin, San Benito, San Mateo, San Joaquin (outside Stockton), Sierra, and Sutter.

It will be observed that the registration districts with high birth-rates include nearly all the cities having freeholders' charters, Salinas with 9.8 and Stockton with 8.8 being the only cities with rates below 10.0, and Eureka being the only freeholders' charter city not reporting vital statistics. In fact, for the twenty freeholders' charter cities, with a total estimated population of 916,459, the 12,962 births give a birth-rate of 14.1 per 1,000 inhabitants. But for all the rest of the State, with an estimated population of 868,062, the 7,947 births give a birth-rate of only 9.2, or 4.9 less in each 1,000 than for the cities. As a rule, it is more difficult to secure complete registration of births in rural districts than in urban centers, though there are several counties where the Recorders as local registrars have obtained satisfactory returns of births.

Sex and Race.—The proportion of the sexes among the 20,909 children born in 1905-1906 is: Male, 10,835, or 51.8 per cent; and female, 10,074, or 48.2 per cent. The race distribution is: White, 20,537, or 98.2 per cent; Japanese, 156, or 0.8 per cent; Chinese, 141, or 0.7 per cent; negro, 70, or 0.3 per cent; Indian, 5, or less than one-tenth of 1 per cent. The per cents male and female are the same for the white as for all children, 51.8 and 48.2 per cent, respectively, but among the 372 non-Caucasians the males were 198, or 53.2 per cent, and the females 174, or 46.8 per cent.

No marked differences appear between various sections of California, either in the proportion of the sexes or in the race distribution. Thus, among the several geographic divisions into which the fifty-seven counties of the State have been grouped the per cent male varies only from 52.9 for the interior counties of Central California to 51.1 for the interior counties of Northern California and for the coast counties of Central California. Similarly, the per cent white ranges only from 99.1 for the six counties of Southern California other than Los Angeles to 97.1 for the City and County of San Francisco.

Table 2, below, gives the proportion of the sexes and also the race distribution, in detail, for each geographic division of the State described more particularly on page 86 of this Report, as well as for the metropolitan area in contrast with the rural counties north of Tehachapi.

TABLE 2.—*Living Births classified by Sex and by Race, with Per Cent Distributions, for Geographic Divisions: 1905-1906.*

Geographic Division.	Living Births: 1905-1906.	Male.	Female.	White.	Negro.	Indian.	Chinese.	Japanese.
NUMBERS.								
THE STATE	20,909	10,835	10,074	20,537	70	5	141	156
Northern California	2,060	1,058	1,002	2,038	1	4	9	8
Coast counties	690	358	332	681	-------	4	2	3
Interior counties	1,370	700	670	1,357	1	-------	7	5
Central California	12,886	6,672	6,214	12,618	29	-------	120	119
San Francisco	5,250	2,695	2,555	5,098	5	-------	92	55
Other bay counties.	2,522	1,306	1,216	2,481	13	-------	5	23
Coast counties	1,786	912	874	1,752	2	-------	7	25
Interior counties	3,328	1,759	1,569	3,287	9	-------	16	16
Southern California	5,963	3,105	2,858	5,881	40	1	12	29
Los Angeles	3,944	2,058	1,886	3,881	35	-------	9	19
Other counties	2,019	1,047	972	2,000	5	1	3	10
Northern and Central California	14,946	7,730	7,216	14,656	30	4	129	127
Coast counties	10,248	5,271	4,977	10,012	20	4	106	106
Interior counties	4,698	2,459	2,239	4,644	10	-------	23	21
Metropolitan area	7,772	4,001	3,771	7,579	18	-------	97	78
Rural counties	7,174	3,729	3,445	7,077	12	4	32	49
PER CENTS.								
THE STATE	100.0	51.8	48.2	98.2	0.3	*	0.7	0.8
Northern California	100.0	51.4	48.6	98.9	0.1	0.2	0.4	0.4
Coast counties	100.0	51.9	48.1	98.7	-------	0.6	0.3	0.4
Interior counties	100.0	51.1	48.9	99.0	0.1	-------	0.5	0.4
Central California	100.0	51.8	48.2	98.0	0.2	-------	0.9	0.9
San Francisco	100.0	51.3	48.7	97.1	0.1	-------	1.8	1.0
Other bay counties	100.0	51.8	48.2	98.4	0.5	-------	0.2	0.9
Coast counties	100.0	51.1	48.9	98.1	0.1	-------	0.4	1.4
Interior counties	100.0	52.9	47.1	98.7	0.3	-------	0.5	0.5
Southern California	100.0	52.1	47.9	98.6	0.7	*	0.2	0.5
Los Angeles	100.0	52.2	47.8	98.4	0.9	-------	0.2	0.5
Other counties	100.0	51.9	48.1	99.1	0.2	*	0.2	0.5
Northern and Central California	100.0	51.7	48.3	98.1	0.2	*	0.9	0.8
Coast counties	100.0	51.4	48.6	97.7	0.2	0.1	1.0	1.0
Interior counties	100.0	52.3	47.7	98.9	0.2	-------	0.5	0.4
Metropolitan area	100.0	51.5	48.5	97.5	0.2	-------	1.3	1.0
Rural counties	100.0	52.0	48.0	98.6	0.2	0.1	0.4	0.7

s than one tenth of 1 per cent.

Nativity of Mothers.—However, there are great differences between certain sections of the State in the nativity of the mothers of the white children. These differences are shown in the table below, giving the number and per cent of white mothers born in California, born in other states, and foreign born. The few of unknown nativity, numbering only 172, or 0.8 per cent of all in the entire State, have been included with those born elsewhere in the United States than California. Figures are shown for each of the geographic divisions of the State, and also for the metropolitan area, comprising San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in contrast with the rural counties of Northern and Central California.

TABLE 3.—*White Mothers classified by Nativity, with Per Cent Distributions, for Geographic Divisions: 1905-1906.*

Geographic Division.	Total White Mothers.	Born in California.	Born in Other States.	Foreign Born.	Per Cent.		
					Born in California.	Born in Other States.	Foreign Born.
THE STATE	20,537	7,683	7,478	5,376	37.4	36.4	26.2
Northern California	2,038	1,114	650	274	54.7	31.9	13.4
Coast counties	681	331	220	130	48.6	32.3	19.1
Interior counties	1,367	788	430	144	57.7	31.7	10.6
Central California	12,618	5,456	3,325	3,837	43.2	26.4	30.4
San Francisco	5,098	2,136	943	2,019	41.9	18.5	39.6
Other bay counties	2,481	1,039	723	719	41.9	29.1	29.0
Coast counties	1,752	782	548	422	44.6	31.3	24.1
Interior counties	3,287	1,499	1,111	677	45.6	33.8	20.6
Southern California	5,881	1,113	3,503	1,265	18.9	59.6	21.5
Los Angeles	3,881	598	2,360	923	15.4	60.8	23.8
Other counties	2,000	515	1,143	342	25.8	57.1	17.1
Northern and Central California	14,656	6,570	3,975	4,111	44.8	27.1	28.1
Coast counties	10,012	4,288	2,434	3,290	42.8	24.3	32.9
Interior counties	4,644	2,282	1,541	821	49.1	33.2	17.7
Metropolitan area	7,579	3,175	1,666	2,738	41.9	22.0	36.1
Rural counties	7,077	3,395	2,309	1,373	48.0	32.6	19.4

It appears from the preceding table that of the 20,537 white mothers bearing children in California in 1905-1906, 7,683, or 37.4 per cent, were natives of the Golden State; 7,478, or 36.4 per cent, were natives of other states, and 5,376, or 26.2 per cent, were foreign born. The per cents for Southern California, however, differ greatly from those for either Northern or Central California.

South of Tehachapi the great bulk of the white mothers, 59.6 per cent of all, were born in other states than California. In Los Angeles county the per cent foreign born is even greater than the per cent born in California, though in the other six counties south of Tehachapi the California born mothers at least outnumber the foreign born.

North of Tehachapi, especially far north, the bulk of the white mothers were natives of the Golden State, the per cent born here being

54.7 for Northern California and 43.2 for Central California. In each division of Northern and Central California, except only in San Francisco, the per cent born elsewhere in the United States than California is greater, and except for the other bay counties is much greater than the per cent foreign born.

In San Francisco, as in the rest of Northern and Central California, most of the white mothers were natives of the Golden State. In the metropolis, however, the native daughters bearing children are followed closely by the foreign born, the per cent being 41.9 for the former and 39.6 for the latter, while those born elsewhere in the United States than California comprise only 18.5 per cent of all the white mothers. In the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), where, as in San Francisco, 41.9 per cent of the white mothers were born in California, the per cent born in other states is about the same as the per cent foreign born, 29.1 against 29.0.

For the metropolitan area, comprising San Francisco and the other bay counties, the per cents of white mothers born in California and in other states are lower than the corresponding per cents for the remaining rural counties north of Tehachapi. Conversely, the per cent foreign born is much higher for the metropolitan area than for the rural counties of Northern and Central California.

TABLE 4.—*Estimated Population (1905), Living Births, and Birth-rate per 1,000 Population, for Registration Districts arranged Geographically: 1905–1906.*

Registration District.	Estimated Population: 1905.	Living Births: 1905–1906.	Birth-rate per 1,000 Population.
THE STATE	1,784,521	20,909	11.7
Northern California	269,510	2,060	7.6
Coast counties	121,785	690	5.7
Del Norte	2,408	43	17.9
Humboldt, rural	20,360	28	1.4
Eureka city	8,562	----	----
Lake	6,017	82	13.6
Mendocino	21,892	144	6.6
Napa, rural	12,435	81	6.5
Napa City	4,036	68	16.8
Sonoma, rural	33,960	159	4.7
Santa Rosa city	7,400	74	10.0
Trinity	4,715	11	2.3
Interior counties	147,725	1,370	9.3
Butte	17,117	244	14.3
Colusa	7,364	73	9.9
Glenn	5,150	38	7.4
Lassen	4,647	46	9.9
Modoc	5,121	85	16.6
Nevada, rural	13,198	128	9.7
Grass Valley city	4,801	114	23.7
Placer	16,129	43	2.7
Plumas	4,657	38	8.2
Shasta	19,911	161	8.1
Sierra	4,017	45	11.2
Siskiyou	19,362	176	9.1
Sutter	6,095	61	10.0
Tehama	11,536	54	4.7
Yuba	8,620	64	7.4
Central California	1,105,090	12,886	11.7
San Francisco	450,000	5,250	11.7
Other bay counties	216,127	2,522	11.7
Alameda, rural	57,100	288	5.0
Berkeley town	18,600	370	19.9
Oakland city	90,000	1,397	15.5
Contra Costa	20,312	135	6.6
Marin	17,017	186	10.9
San Mateo	13,098	146	11.1
Coast counties	132,371	1,786	13.5
Monterey, rural	15,965	147	9.2
Salinas City	3,787	37	9.8
San Benito	6,744	73	10.8
San Luis Obispo	16,920	165	9.8
Santa Clara, rural	43,102	688	16.0
San José city	23,220	379	16.3
Santa Cruz, rural	12,734	86	6.8
Santa Cruz city	5,681	142	25.0
Watsonville city	4,218	69	16.4

TABLE 4.—*Estimated Population (1905), Living Births, and Birth-rate per 1,000 Population, for Registration Districts arranged Geographically: 1905-1906—Continued.*

Registration District.	Estimated Population: 1905.	Living Births 1905-1906.	Birth-rate per 1,000 Population.
Central California—Continued:			
Interior counties	306,592	3,328	10.9
Alpine	509	9	17.7
Amador	11,514	47	4.1
Calaveras	12,359	129	10.4
El Dorado	8,986	124	13.8
Fresno, rural	29,784	429	14.4
Fresno city	13,295	390	29.3
Inyo	4,794	30	6.3
Kern	19,816	161	8.1
Kings	12,044	77	6.4
Madera	7,247	103	14.2
Mariposa	5,187	23	4.4
Merced	9,780	57	5.8
Mono	2,250	6	2.7
Sacramento, rural	17,971	146	8.1
Sacramento city	30,732	389	12.7
San Joaquin, rural	19,818	227	11.5
Stockton city	19,046	168	8.8
Solano, rural	16,964	135	8.0
Vallejo city	8,778	141	16.1
Stanislaus	9,550	147	15.4
Tulare	18,375	297	16.2
Tuolumne	13,708	11	0.8
Yolo	14,085	82	5.8
Southern California	409,921	5,963	14.5
Los Angeles	259,000	3,944	15.2
Los Angeles, rural	67,765	529	7.8
Los Angeles city	180,000	3,128	17.4
Pasadena city	11,235	287	25.5
Other counties	150,921	2,019	13.4
Orange	22,750	327	14.4
Riverside	20,140	341	16.9
San Bernardino, rural	24,222	349	14.4
San Bernardino city	7,219	134	18.6
San Diego, rural	20,651	149	7.2
San Diego city	18,900	238	12.6
Santa Barbara, rural	13,575	180	13.3
Santa Barbara city	6,949	187	26.9
Ventura	16,515	114	6.9
Northern and Central California	1,374,600	14,946	10.9
Coast counties	920,283	10,248	11.1
Interior counties	454,317	4,698	10.3
Metropolitan area	666,127	7,772	11.7
Rural counties	708,473	7,174	10.1

TABLE 5.—*Living Births Classified by Sex, Race, and*

Registration District.	Living Births: 1905-1906.	Male.	Female.
THE STATE	20,909	10,835	10,074
Northern California	2,060	1,058	1,002
Coast counties	690	358	332
Del Norte	43	24	19
Humboldt, rural	28	14	14
Eureka city	------	------	------
Lake	82	41	41
Mendocino	144	67	77
Napa, rural	81	45	36
Napa City	68	32	36
Sonoma, rural	159	84	75
Santa Rosa city	74	44	30
Trinity	11	7	4
Interior counties	1,370	700	670
Butte	244	122	122
Colusa	73	40	33
Glenn	38	14	24
Lassen	46	24	22
Modoc	85	47	38
Nevada, rural	128	60	68
Grass Valley city	114	54	60
Placer	43	27	16
Plumas	38	20	18
Shasta	161	82	79
Sierra	45	25	20
Siskiyou	176	88	88
Sutter	61	31	30
Tehama	54	33	21
Yuba	64	33	31
Central California	12,886	6,672	6,214
San Francisco	5,250	2,695	2,555
Other bay counties	2,522	1,306	1,216
Alameda, rural	288	150	138
Berkeley town	370	202	168
Oakland city	1,397	688	709
Contra Costa	135	78	57
Marin	186	103	83
San Mateo	146	85	61
Coast counties	1,786	912	874
Monterey, rural	147	73	74
Salinas City	37	15	22
San Benito	73	32	41
San Luis Obispo	165	77	88
Santa Clara, rural	688	345	343
San José city	379	212	167
Santa Cruz, rural	86	47	39
Santa Cruz city	142	75	67
Watsonville city	69	36	33

Nativity of Mothers, for Registration Districts: 1905-1906.

White.			Negro.	Indian.	Chinese.	Japanese.	White Mothers.			
Total.	Male.	Female.					Born in California.	Born in Other States.	Foreign Born.	Nativity Unknown.
20,537	10,637	9,900	70	5	141	156	7,683	7,306	5,376	172
2,038	1,043	995	1	4	9	8	1,114	617	274	33
681	351	330		4	2	3	331	210	130	10
43	24	19					14	25	4	
28	14	14					7	6	10	5
82	41	41					49	24	9	
139	63	76		4		1	87	35	16	1
81	45	36					34	17	29	1
68	32	36					37	23	8	
155	81	74			2	2	69	49	34	3
74	44	30					26	29	19	
11	7	4					8	2	1	
1,357	692	665	1		7	5	783	407	144	23
242	122	120			2		125	87	18	12
72	39	33			1		44	18	8	2
38	14	24					30	7	1	
46	24	22					29	14	2	1
85	47	38					48	33	4	
126	58	68			2		74	31	21	
114	54	60					67	22	23	2
38	23	15				5	22	12	3	1
38	20	18					23	6	9	
160	81	79	1				87	62	11	
45	25	20					37	6	2	
176	88	88					88	53	32	3
61	31	30					37	17	6	1
54	33	21					27	26		1
62	33	29			2		45	13	4	
12,618	6,527	6,091	29		120	119	5,456	3,244	3,837	81
5,098	2,612	2,486	5		92	55	2,136	921	2,019	22
2,481	1,279	1,202	13		5	23	1,039	716	719	7
286	149	137	1			1	126	66	93	1
365	199	166				5	148	139	78	
1,366	668	698	11		3	17	566	412	386	2
135	78	57					58	36	39	2
185	102	83			1		84	34	65	2
144	83	61	1		1		57	29	58	
1,752	895	857	2		7	25	782	530	422	18
135	66	69			2	10	72	24	39	
34	13	21			2	1	21	8	5	
72	32	40	1				45	15	12	
164	78	87			1		95	39	30	
685	344	341				3	248	225	197	15
376	210	166	1		2		161	116	96	3
83	45	38				3	41	28	14	
141	75	66				1	63	57	21	
62	33	29				7	36	18	8	

TABLE 5.—*Living Births Classified by Sex, Race, and Nativity*

Registration District.	Living Births: 1905-1906.	Male.	Female.
Central California—Continued.			
Interior counties	3,328	1,759	1,569
Alpine	9	5	4
Amador	47	26	21
Calaveras	129	70	59
El Dorado	124	63	61
Fresno, rural	429	225	204
Fresno city	390	202	188
Inyo	30	20	10
Kern	161	92	69
Kings	77	34	43
Madera	103	54	49
Mariposa	23	11	12
Merced	57	25	32
Mono	6	2	4
Sacramento, rural	146	74	72
Sacramento city	389	192	197
San Joaquin, rural	227	130	97
Stockton city	168	99	69
Solano, rural	135	68	67
Vallejo city	141	77	64
Stanislaus	147	87	60
Tulare	297	153	144
Tuolumne	11	9	2
Yolo	82	41	41
Southern California	5,963	3,105	2,858
Los Angeles	3,944	2,058	1,886
Los Angeles, rural	529	270	259
Los Angeles city	3,128	1,633	1,495
Pasadena city	287	155	132
Other counties	2,019	1,047	972
Orange	327	171	156
Riverside	341	188	153
San Bernardino, rural	349	188	161
San Bernardino city	134	69	65
San Diego, rural	149	67	82
San Diego city	238	130	108
Santa Barbara, rural	180	91	89
Santa Barbara city	187	85	102
Ventura	114	58	56
Northern and Central California	14,946	7,730	7,216
Coast counties	10,248	5,271	4,977
Interior counties	4,698	2,459	2,239
Metropolitan area	7,772	4,001	3,771
Rural counties	7,174	3,729	3,445

of Mothers, for Registration Districts: 1905-1906—Continued.

White.			Negro.	Indian.	Chinese.	Japanese.	White Mothers.			
Total.	Male.	Female.					Born in California.	Born in Other States.	Foreign Born.	Nativity Unknown.
3,287	1,741	1,546	9	--------	16	16	1,499	1,077	677	34
9	5	4	--------	--------	--------	--------	7	2	--------	--------
47	26	21	--------	--------	--------	--------	29	12	6	--------
129	70	59	--------	--------	--------	--------	101	14	14	--------
123	63	60	--------	--------	1	--------	93	22	8	--------
426	223	203	2	--------	1	--------	116	189	120	1
384	200	184	4	--------	1	1	131	155	96	2
30	20	10	--------	--------	--------	--------	15	13	2	--------
155	89	66	--------	--------	3	3	49	63	43	--------
76	34	42	--------	--------	--------	1	27	36	12	1
103	54	49	--------	--------	--------	--------	43	33	19	8
23	11	12	--------	--------	--------	--------	18	3	1	1
57	25	32	--------	--------	--------	--------	24	9	24	--------
6	2	4	--------	--------	--------	--------	4	2	--------	--------
141	71	70	--------	--------	3	2	69	32	37	3
379	187	192	--------	--------	4	6	177	106	81	15
226	130	96	--------	--------	--------	1	108	74	43	1
165	99	66	1	--------	2	--------	108	36	21	--------
135	68	67	--------	--------	--------	--------	68	28	39	--------
138	75	63	2	--------	1	--------	71	24	43	--------
147	87	60	--------	--------	--------	--------	65	50	31	1
297	153	144	--------	--------	--------	--------	118	152	26	1
11	9	2	--------	--------	--------	--------	9	--------	2	--------
80	40	40	--------	--------	--------	2	49	22	9	--------
5,881	3,067	2,814	40	1	12	29	1,113	3,445	1,265	58
3,881	2,030	1,851	35	--------	9	19	598	2,337	923	23
527	269	258	2	--------	--------	--------	106	312	103	6
3,068	1,606	1,462	32	--------	9	19	461	1,821	770	16
286	155	131	1	--------	--------	--------	31	204	50	1
2,000	1,037	963	5	1	3	10	515	1,108	342	35
325	171	154	1	--------	--------	1	77	198	46	4
331	181	150	3	1	--------	6	57	213	51	10
349	188	161	--------	--------	--------	--------	51	237	60	1
133	69	64	1	--------	--------	--------	35	69	26	3
149	67	82	--------	--------	--------	--------	31	80	29	9
238	130	108	--------	--------	--------	--------	38	146	53	1
177	90	87	--------	--------	2	1	97	46	31	3
186	85	101	--------	--------	1	--------	84	66	36	--------
112	56	56	--------	--------	--------	2	45	53	10	4
14,656	7,570	7,086	30	4	129	127	6,570	3,861	4,111	114
10,012	5,137	4,875	20	4	106	106	4,288	2,377	3,290	57
4,644	2,433	2,211	10	--------	23	21	2,282	1,484	821	57
7,579	3,891	3,688	18	--------	97	78	3,175	1,637	2,738	29
7,077	3,679	3,398	12	4	32	49	3,395	2,224	1,373	85

PROPORTION OF CHILDREN: 1850 TO 1900.[1]

Children to Potential Mothers.—The proportion of children to potential mothers, or women of child-bearing age, is the only index of the birth-rate available for past decades, since the registration of births for statistical purposes is comparatively recent either in the United States as a whole or in the single State of California. The proportion can be calculated from the figures of the Federal Census as far back as 1850, the year when California was admitted to the Union.

The following table shows the proportion of children under 5 years of age to women 15 to 49 years of age for continental United States and California at each census from 1850 to 1900:

	1900.	1890.	1880.	1870.	1860.	1850.
United States	474	485	559	572	634	626
California	340	378	504	620	716	479

In California, as in the entire country, the proportion of children rose somewhat between 1850 and 1860, but declined steadily in each succeeding decade. Conditions in California were so exceptional in 1850 that the figures for that census should be disregarded. In the forty years from 1860 to 1900, when the proportion for the United States fell from 634 to 474, or a drop of 160 in the 1,000, there was a drop of 376 in the 1,000 for California, the proportion falling from 716 to 340. Although the proportion of children to women was much greater for the Golden State than for the entire country in 1860 and 1870, this superiority no longer continues, the proportion having been less for California than for the United States at the censuses from 1880 to the one last taken.

Comparisons between this State and the whole country are best confined to figures for whites alone, since the negro population of the South has an appreciable effect upon the totals for the United States. In the table below, therefore, corresponding figures are given for merely the white population of continental United States and California:

	1900.	1890.	1880.	1870.	1860.	1850.
United States	465	473	537	562	627	613
California	338	379	513	643	764	484

The exceptional figures for 1850 being disregarded, it appears that the proportion of white children under 5 to white women 15 to 49 in California was much greater than in the United States at the censuses before 1880, but that it has been less, and increasingly so, at the censuses since then. In 1860 the proportion for the Golden State exceeded that for the whole country by 137 in the 1,000, and in 1870 by 81. In 1880, however, this had shifted to an excess of 26 in the proportion for the United States over that for California, which rose to 94 in 1890 and 127 in 1900. The excess of 137 in the proportion for California in 1860 changed to an excess of 127 in the proportion for the United States in 1900. While the proportion of white children to white women 15 to 49 years of age in the United States in 1900 was still about three fourths as great as the maximum for 1860, the proportion for California in 1900 was less than half as great as that in 1860.

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[1] Figures drawn mainly from article on Proportion of Children, in Supplementary Analysis of Twelfth Census, Washington, D. C., 1906.

The age groups employed in the early censuses made it necessary to calculate the proportion of children with respect to women 15 to 49 years of age, though 15 to 44 is usually regarded as the period of fecundity. The proportion of children under 5 to women of the usual child-bearing age, 15 to 44 years, is obtainable for each census since 1870, and the figures for the total and white population are as follows for continental United States and California, respectively:

	1900.	1890.	1880.	1870.
TOTAL.				
United States	518	529	609	620
California	372	414	552	661
WHITE.				
United States	508	517	586	610
California	371	415	562	687

Attention is best fixed on the proportion of white children under 5 to white women 15 to 44 years of age. In 1870 the proportion for California exceeded that for the United States by 77, but at every census thereafter the excess was on the side of the United States, the proportion exceeding that for California by 44 in 1880, 102 in 1890, and 137 in 1900. The proportion of white children to white women of child-bearing age in the country as a whole fell from 610 in 1870 to 508 in 1900, a decline of 102 or one sixth in the thirty years. The decline in the proportion for the Golden State alone, however, was much more rapid, the change being from 687 in 1870 to only 371 in 1900, a drop of 316 or nearly half in the thirty-year period.

Cities and Rural Districts.—For the decade 1890–1900 contrasts can be drawn between the proportion of children to women in cities having at least 25,000 inhabitants on one hand and smaller cities and rural districts on the other. The figures for the total and white population of continental United States and California are as follows:

	Total.		White.	
	1900.	1890.	1900.	1890.
UNITED STATES.				
Cities of 25,000	390	401	399	407
Rural districts	572	574	559	559
CALIFORNIA.				
Cities of 25,000	294	329	293	331
Rural districts	427	470	425	471

In the country as a whole the proportion of children decreased between 1890 and 1900 only in cities having at least 25,000 inhabitants, and even there by only about one fortieth. The proportion in California, however, decreased by approximately one tenth not only for such cities as a class, but also for the rural districts outside them as well.

The following table gives corresponding figures for the principal cities of this State:

City.	Total.		White.	
	1900.	1890.	1900.	1890.
San Francisco	297	322	296	324
Los Angeles	280	352	279	354
Oakland	304	349	306	349
Sacramento	286	320	285	320

At the last census the proportion of children to women of child-bearing age was highest for Oakland, next for San Francisco and Sacramento, and lowest for Los Angeles, where also the decrease was most marked, Los Angeles having had the highest proportion at the preceding census in 1890.

The analysis may be extended further by considering the proportion of children under 5 to white women 15 to 44 distinguished as native and foreign-born. This is done by comparing the proportion of native white children having native mothers per 1,000 native white women with the proportion of native white children having foreign mothers per 1,000 foreign-born white women. The results of the calculations appear in the following table for the cities of 25,000 population and the rural districts of continental United States and California at the last two censuses:

	Native.		Foreign.	
	1900.	1890.	1900.	1890.
UNITED STATES	462	475	710	666
Cities of 25,000	296	309	612	565
Rural districts	522	522	841	776
CALIFORNIA	308	352	610	575
Cities of 25,000	220	241	505	485
Rural districts	365	414	726	678

This table shows that the proportion of children, or the apparent birth-rate, decreased in the decade only for native white women. For the United States as a whole the decrease appeared only in cities having at least 25,000 inhabitants, but for California the proportion decreased for native white women not only in the principal cities, but also outside them. The increase in the proportion of children to foreign-born white women, whether in city or country, was only slightly less marked for California than for the United States. In all cases the proportion of children to women of child-bearing age in cities of 25,000 population as a class is considerably less than in the smaller cities and rural districts grouped together.

The corresponding figures for the principal California cities are as follows:

City.	Native.		Foreign.	
	1900.	1890.	1900.	1890.
San Francisco	208	217	512	487
Los Angeles	237	313	448	455
Oakland	238	275	518	481
Sacramento	237	254	548	546

The proportion of children to native white women was lowest at each census for San Francisco, where, however, there was only a slight decrease between 1890 and 1900. The proportion was about the same in 1900 for each of the three remaining cities, though the decrease in the decade was greatest for Los Angeles and least for Sacramento. Los Angeles is also the only one of the four cities of 25,000 population in California to show any decrease in the proportion of children to foreign-born white women. This proportion increased most in 1890–1900 in Oakland and next in San Francisco. Though there was only a slight increase for Sacramento, the State capital has the distinction of being the city where the proportion of children to foreign women was decidedly highest at each census.

Children to Married Women.—The closest approximation to a birth-rate obtainable from the Federal Census is found by comparing the children under 5 with the married women of child-bearing age, 15 to 44 years. The proportions for the total and white population respectively are shown herewith as far as the published data permit the calculations to be carried:

	Total.		White.	
	1900.	1890.	1900.	1890.
UNITED STATES	929	957	908	934
Cities of 100,000	773	811	787	822
Rest of country	967	985	941	958
CALIFORNIA	692	764	692	768
Cities of 100,000	582	655	582	662
San Francisco	598	655	599	662
Los Angeles	534	----	532	----
Rest of State	743	801	743	804

In the United States as a whole, the proportion of children to married women of child-bearing age decreased considerably more in 1890–1900 for cities having at least 100,000 inhabitants than for the rest of the country, but in California the decrease in the decade was only slightly more for such cities as a class than for all the rest of the State. The rise of Los Angeles above the 100,000 limit of population between 1890 and 1900 had the effect of reducing the proportion of children to married women for this class of cities in California, as the proportion was much lower in 1900 for Los Angeles than for San Francisco. In California as in the United States the proportion of children to married women is very much less in cities of 100,000 population than outside them.

Corresponding proportions may also be calculated for married white women distinguished as native and foreign-born, as follows:

	Native.		Foreign.	
	1900.	1890.	1900.	1890.
UNITED STATES	862	894	1,058	1,024
Cities of 100,000	643	691	963	934
Rest of country	902	923	1,128	1,075
CALIFORNIA	618	708	891	861
Cities of 100,000	477	533	780	772
San Francisco	478	533	795	772
Los Angeles	476	----	709	----
Rest of State	674	750	969	916

The table shows that the proportion of children to native white married women decreased in 1890–1900 both for the Golden State and the entire nation, and that while the decrease for the United States was most marked in cities of 100,000 population, that for California was most marked outside them. On the other hand, the proportion of children to foreign-born white married women increased appreciably in the decade, the increase for both State and nation being particularly great outside cities of 100,000 population, especially in California.

Conclusion.—The conclusions drawn from the statistics of the Federal Census may now be summarized. Although the proportion of children under 5 to women 15 to 49 in California was above the average for the United States in 1860 and 1870, it fell somewhat below the general average in 1880 and was still further below in 1890 and 1900. While the number of children per 1,000 white women of the age specified decreased by one fourth for the United States in the forty years, 1860–1900, it decreased by about half for California. Similarly in the thirty-year period, 1870–1900, when the proportion of children to white women 15 to 44 years old declined by one sixth for the entire country, it declined by nearly half for this State alone. The decrease in the proportion of children, or the fall in the approximate birth-rate, in the decade 1890–1900 was confined to cities of 25,000 population in the United States as a whole, but in California appeared also among the inhabitants of rural districts outside such cities. The proportion is invariably less in cities of 25,000 population as a class than in smaller cities and rural districts grouped together. The fall in the birth-rate is limited to native white women, both in State and nation and in cities and rural districts. Increases appear in the proportion of children to foreign-born white women, and the increases in California, whether for city or country, are almost as great as for the whole United States. Generally speaking, the proportion of children has fallen not only with respect to all women of child-bearing age, but also in comparison with merely the married women of this age. The decrease appears both in cities of 100,000 population and outside them, whether for State or nation, but as before is limited to native white married women, the proportion of children to the married as to all foreign-born white women having increased in the decade 1890–1900. The decrease in the proportion of children to native white married women in the United States was mainly in cities of 100,000 population, but in California was somewhat more marked outside than within such cities. The increase in the proportion for married women of foreign birth, for both State and nation, was particularly great outside cities of 100,000 population, the relative increase being even greater for California than for the United States.

Of the principal cities in the Golden State, Oakland, in 1900, had the highest proportion of children to women of child-bearing age, San Francisco and Sacramento the next highest, and Los Angeles the lowest. Los Angeles, however, had the highest proportion in 1890, the decrease for this city in the decade having been very rapid. The proportion of children to native white women was lowest both in 1900 and 1890 for San Francisco, and at the last census was not far from the same for each of the three remaining cities. Los Angeles alone shows a decrease in the proportion of children per 1,000 foreign-born white women. This proportion increased most between 1890 and 1900 in Oakland and next in San Francisco, but nevertheless was decidedly highest at each census in Sacramento. The proportion of children under 5 to married women 15 to 44, whether native or foreign born, was less for Los Angeles than for San Francisco in 1900.

The relatively low and decreasing proportion of children to women of child-bearing age shown for Los Angeles suggests a partial explanation for the fact that the proportion for California has fallen even more rapidly than that for the United States. The population of California, instead of growing only by excess of births over deaths, increases largely by adult migration from Eastern states and foreign countries. The arrival in the State of many adults seldom accompanied by young children adds greatly to the number of potential mothers without making any corresponding increase in the number of children recently born, and so tends to depress the apparent birth-rate as measured roughly by the proportion of children under 5 years old to women of child-bearing age. As the center for much migration of this kind from Eastern states, Los Angeles shows a particularly marked decrease in the proportion of children.

However, even if allowance were made for the influence of the factor mentioned, the figures would still probably show that the proportion of children to women has declined in the Golden State no less than in the entire country because of an actual decrease in the birth-rate. Though "race suicide" does not prevail in the foreign-born white population of either California or the United States, it evidently exists to some extent in the native white population living here as elsewhere. Whether the birth-rate, or the proportion of children, is higher or lower for California-born women than for other natives of the United States can not be determined from the present figures of the Federal Census, but only from a future analysis of statistical data obtained in the registration of births as now required by the State law.

STATISTICS OF MARRIAGES: 1905–1906.

Summary.—Altogether 17,932 marriages were reported to the California State Bureau of Vital Statistics in 1905–1906, the first year covered by the new law requiring marriages to be registered.

San Francisco reported 4,230 marriages, or 23.6 per cent of the State total, despite the loss of records in April, 1906.

There were also over 2,000 marriages for the year in Los Angeles and Alameda counties; between 600 and 1,000 in Santa Clara, Sacramento, and Marin; and between 400 and 500 in Fresno, San Diego, San Joaquin, San Bernardino, and Orange.

For an estimated State population of 1,784,521 in 1905 the 17,932 marriages in 1905–1906 give a rate of 10.0 per 1,000 population, though complete returns from Los Angeles county for the year would make the State rate 11.1 instead.

The marriage-rate is higher for the seven counties of Southern California than for the fifty north of Tehachapi. The rate is also higher for the metropolitan area, comprising San Francisco and the other bay counties, than for the rural counties of Northern and Central California.

Among the individual counties, Marin shows the highest marriage-rate, 36.4 per 1,000 population, followed by Orange 18.5, San Mateo 17.9, Sacramento 17.0, and Los Angeles 15.6 (corrected rate). The marriage-rates are also above the State average, 10.0, for the following counties: San Bernardino, Santa Clara, Alameda, Riverside, San Diego, San Joaquin, Fresno, Tulare, Santa Barbara, Stanislaus, and San Luis Obispo.

The statistics indicate that there is a decided tendency for persons living in rural counties to be married at the largest city easily accessible. This seems the readiest explanation of the relatively high marriage-rates not only for the metropolitan area in Northern and Southern California and for Los Angeles county in Southern California, but also for the counties containing such cities as Sacramento, San José, Stockton, Fresno, Visalia, Modesto, and San Luis Obispo.

There is also a counter movement by which residents of very large cities, like San Francisco or Los Angeles, prefer to be married in suburban counties. Thus it happens that the marriage-rates are much higher for Marin, San Mateo, and Alameda counties than for the metropolis itself, and that in Southern California the rate is highest for Orange rather than for Los Angeles county. This movement is particularly marked on San Francisco Bay, where San Rafael, in Marin county, is a veritable Gretna Green, especially, as shown later, for divorcees.

In 13,182 of the 17,932 marriages in 1905–1906, or 73.5 per cent of all cases, the marriage was the first for both parties. The per cent of first marriages is highest, 76.8, for the coast counties of Northern California, followed by 76.2 for the interior counties of Central California and 76.0 for San Francisco.

While 1,958 single men were married to widowed or divorced women, only 1,450 single women were married to widowed or divorced men. In fact, only nine of the fifty-seven counties show exceptions to the rule that there are more unions of bachelors with widows than of maids with widowers.

In 1,342 instances, or 7.5 per cent of all, the marriage was the second or over of both parties. The per cent of marriages where both parties had been married before is particularly high for Southern California, especially outside Los Angeles, and for the bay counties other than San Francisco. Though among the eight minor geographic divisions, San Francisco has the lowest per cent of such marriages, yet the per cent is somewhat higher for the metropolitan area than for the rural counties of Northern and Central California.

Altogether 15,140 or 84.4 per cent of the grooms were single, 1,655 widowed, and 1,137 divorced; while of the brides 14,632 or 81.6 per cent were single, 1,891 widowed, and 1,409 divorced. The widows outnumber the widowers by 236 or 14.3 per cent, and among the divorced the women exceed the men by 272 or 23.9 per cent.

The per cent of widowers is particularly high only in Southern California, especially outside Los Angeles, but the per cent of widows is relatively high, not only in Southern California, but also in both the coast and interior counties of Northern California.

The per cent divorced, both among grooms and brides, is highest for the bay counties other than San Francisco, and next for Southern California, especially outside Los Angeles, being highest south of Tehachapi in Orange county.

Though the per cent of divorced brides is 7.9 for all California and only 7.4 for San Francisco, it is 8.9 for Alameda, 9.0 for Contra Costa, 14.1 for San Mateo, and 15.5 for Marin. It appears, therefore, that the tendency for residents of the metropolis to be married in suburban counties is particularly strong among divorcees.

County Totals.—Under the law of 1905 requiring County Recorders as local registrars to transmit to the State Registrar the original marriage certificates filed with them each month, 17,932 marriages were registered in the California State Bureau of Vital Statistics for 1905–1906. The total for the last half of 1905 was 8,338, against 9,594 for the first half of 1906.

Table 1, below, shows the counties for which at least 100 marriages were reported to the State Bureau of Vital Statistics in 1905–1906:

TABLE 1.—*Rank of Counties with at Least 100 Marriages: 1905–1906.*

Rank.	County.	Marriages: 1905–1906.
	THE STATE	17,932
1.	San Francisco	4,230
2.	Los Angeles	*2,241
3.	Alameda	2,221
4.	Santa Clara	921
5.	Sacramento	826
6.	Marin	619
7.	Fresno	491
8.	San Diego	480
9.	San Joaquin	456
10.	San Bernardino	453
11.	Orange	421
12.	Riverside	266
13.	Sonoma	237
14.	San Mateo	235
15.	Santa Barbara	226
16.	Santa Cruz	225
17.	Tulare	205
18.	Mendocino	181
19.	San Luis Obispo	179
20.	Humboldt	170
21.	Napa	159
22.	Solano	158
23.	Contra Costa	155
24.	Monterey	153
25.	Kern	140
26.	Ventura	137
27.	Shasta	132
28.	Nevada	118
29.	Kings	112
30.	Siskiyou	111
31.	Stanislaus	104
32.	Butte	103
	Remaining 25 counties	1,067

*Returns incomplete.

Despite the destruction of certificates for more than one half of April, 1906, and incomplete registration in the confusion following the great fire, San Francisco with 4,230 marriages properly registered contributes 23.6 per cent of the State total. The returns for Los Angeles cover little over half a year, the first certificates received having been for December, 1905. Complete returns for the whole twelve months would have made the total for Los Angeles county nearer that for San Francisco. In Alameda county, as well as San Francisco and Los Angeles, over 2,000 marriages were registered in 1905–1906.

With regard to the number of marriages registered, the counties fall into several groups. First, there is a group of 3 counties, each with over 2,000 marriages in the year; next comes another group of 3 counties, each with between 600 and 1,000 marriages in the year; then a group of 5, each with from 400 to 500 marriages; then a group of 6, with from 200 to 300 marriages; and then a group of 15 with from 100 to 200 marriages.

In addition to the 32 counties ranked in Table 1, there were 9 with from 50 to 100 marriages in the year, viz.: Amador, Calaveras, El Dorado, Merced, San Benito, Tehama, Tuolumne, Yolo, and Yuba; 10 with from 25 to 50 marriages, viz.: Colusa, Glenn, Inyo, Lake, Lassen, Madera, Modoc, Placer, Plumas, and Sutter; and 6 with less than 25 marriages each, viz.: Alpine, Del Norte, Mariposa, Mono, Sierra, and Trinity.

Marriage-rates.—For the purpose of calculating marriage-rates, the population of California in 1905 has been estimated conservatively according to the Census Bureau method by adding to the population in 1900 five tenths of the increase between 1890 and 1900, except that for the few counties showing decreases between the last two Federal censuses the population in 1900 has been taken for 1905, and for the three principal cities arbitrary estimates have been made because of their exceptionally rapid growth. The estimate for San Francisco in 1905 is 450,000, for Los Angeles, 180,000, and for Oakland, 90,000. As a bulk of the marriage returns for 1905–1906 were not affected by the public calamity in April, 1906, no estimates have been changed on account of temporary readjustments of population caused by the San Francisco fire. For convenience in tabulation, the fifty-seven counties of California have been grouped in three main and eight minor geographic divisions, which appear in Table 2, the counties in each group being arranged alphabetically for the sake of ready reference. Marriage-rates are also shown for the metropolitan area, comprising San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo) in contrast with the rural counties of Northern and Central California.

TABLE 2.—*Estimated Population (1905), Marriages, and Marriage-rate per 1,000 Population, for Counties arranged Geographically: 1905-1906.*

County.	Estimated Population: 1905.	Marriages: 1905-1906.	Marriage-rate per 1,000 Population.
THE STATE	1,784,521	17,932	*10.0
Northern California	269,510	1,693	6.3
Coast counties	121,785	806	6.6
Del Norte	2,408	15	6.2
Humboldt	28,922	170	5.9
Lake	6,017	32	5.3
Mendocino	21,892	181	8.3
Napa	16,471	159	9.7
Sonoma	41,360	237	5.7
Trinity	4,715	12	2.5
Interior counties	147,725	887	6.0
Butte	17,117	103	6.0
Colusa	7,364	38	5.2
Glenn	5,150	35	6.8
Lassen	4,647	30	6.5
Modoc	5,121	44	8.6
Nevada	17,999	118	6.6
Placer	16,129	41	2.5
Plumas	4,657	30	6.4
Shasta	19,911	132	6.6
Sierra	4,017	16	4.0
Siskiyou	19,362	111	5.7
Sutter	6,095	35	5.7
Tehama	11,536	81	7.0
Yuba	8,620	73	8.5
Central California	1,105,090	12,015	10.9
San Francisco	450,000	4,230	9.4
Other bay counties	216,127	3,230	14.9
Alameda	165,700	2,221	13.4
Contra Costa	20,312	155	7.6
Marin	17,017	619	36.4
San Mateo	13,098	235	17.9
Coast counties	132,371	1,544	11.7
Monterey	19,752	153	7.7
San Benito	6,744	66	9.8
San Luis Obispo	16,920	179	10.6
Santa Clara	66,322	921	13.9
Santa Cruz	22,633	225	9.9
Interior counties	306,592	3,011	9.8
Alpine	509	1	2.0
Amador	11,514	56	4.9
Calaveras	12,359	51	4.1
El Dorado	8,986	56	6.2
Fresno	43,079	491	11.4
Inyo	4,794	30	6.3
Kern	19,816	140	7.1
Kings	12,044	112	9.3
Madera	7,247	40	5.5
Mariposa	5,187	11	2.1
Merced	9,780	75	7.7
Mono	2,250	5	2.2
Sacramento	48,703	826	17.0
San Joaquin	38,864	456	11.7
Solano	25,742	158	6.1
Stanislaus	9,550	104	10.9
Tulare	18,375	205	11.2
Tuolumne	13,708	99	7.2
Yolo	14,085	95	6.7

TABLE 2.—*Estimated Population (1905), Marriages, and Marriage-rate per 1,000 Population for Counties arranged Geographically: 1905-1906—Continued.*

County.	Estimated Population: 1905.	Marriages: 1905-1906.	Marriage-rate per 1,000 Population.
Southern California	409,921	4,224	*10.3
Los Angeles	259,000	2,241	*8.7
Other counties	150,921	1,983	13.1
Orange	22,750	421	18.5
Riverside	20,140	266	13.2
San Bernardino	31,441	453	14.4
San Diego	39,551	480	12.1
Santa Barbara	20,524	226	11.0
Ventura	16,515	137	8.3
Northern and Central California	1,374,600	13,708	10.0
Coast counties	920,283	9,810	10.7
Interior counties	454,317	3,898	8.6
Metropolitan area	666,127	7,460	11.2
Rural counties	708,473	6,248	8.8

* The 2,241 marriages for Los Angeles County include only 191 for 1905, against 2,050 for 1906, so that the registration is short by 1,800 or more. Corrected for this omission, the rate would be 11.1 for the State, 14.7 for Southern California, and 15.6 for Los Angeles.

It appears from Table 2 that for an estimated State population of 1,784,521 in 1905, the 17,932 marriages registered in 1905-1906 give a marriage-rate of 10.0 per 1,000 population, though complete returns for Los Angeles county would make the State rate 11.1 instead. The marriage-rate is higher for Southern California than for Northern and Central California together. In Northern as well as Central California the rate is higher for the coast counties than for the interior counties. The rate is also considerably higher for the metropolitan area, comprising San Francisco and the other bay counties, than for the rural counties north of Tehachapi.

Among the individual counties, Marin shows the highest marriage-rate, 36.4 per 1,000 population, followed by Orange 18.5, San Mateo 17.9, and Sacramento 17.0. The corrected rate for Los Angeles county, 15.6, would place it next in rank, followed by San Bernardino 14.4, Santa Clara 13.9, Alameda 13.4, Riverside, 13.2, San Diego 12.1, San Joaquin 11.7, Fresno, 11.4, Tulare 11.2, Santa Barbara 11.0, Stanislaus, 10.9, and San Luis Obispo 10.6, these being the counties with marriage-rates above the State average.

The fact that the marriage-rate is higher for the metropolitan area than for the rural counties of Northern and Central California and that the corrected rate for Los Angeles is above that for the rest of Southern California, indicates that marriages usually take place at urban centers. Moreover, the counties named as having marriage-rates above the State average will be readily recognized as counties having large cities. As a rule, too, in each geographic division the counties with rates above the average for the group are counties with important cities or towns. It seems, therefore, that there is a decided tendency for those about to marry to slip away from their homes in rural counties to be married at an important city in some other county.

At the same time there is a counter movement by which couples residing in great cities like San Francisco and Los Angeles go to a suburban county when they wish to be married. This counter movement is shown by the fact that at San Francisco bay the marriage-rates are much higher for Marin, San Mateo, and Alameda counties than for the metropolis itself, and in Southern California the marriage-rate for Orange county is considerably higher even than the corrected rate for Los Angeles.

Number in Order.—Table 3, below, gives the number in order of marriages, with per cents, for the three main and eight minor geographic divisions, including certain other groups of counties.

TABLE 3.—*Marriages classified by Number in Order, with Per Cent Distributions, for Geographic Divisions: 1905–1906.*

Geographic Division.	Total Marriages.	Number of Marriage.				Per Cent of Marriages.			
		1st of Both Parties.	1st of Groom Only.	1st of Bride Only.	2d or Over of Both.	1st of Both Parties.	1st of Groom Only.	1st of Bride Only.	2d or Over of Both.
THE STATE	17,932	13,182	1.958	1,450	1,342	73.5	10.9	8.1	7.5
Northern California	1,693	1,278	194	110	111	75.5	11.5	6.5	6.5
Coast counties	806	619	89	49	49	76.8	11.0	6.1	6.1
Interior counties	887	659	105	61	62	74.3	11.8	6.9	7.0
Central California	12,015	8,900	1,331	933	851	74.1	11.1	7.7	7.1
San Francisco	4,230	3,217	456	312	245	76.0	10.8	7.4	5.8
Other bay counties	3,230	2,241	415	282	292	69.4	12.9	8.7	9.0
Coast counties	1,544	1,147	145	141	111	74.3	9.4	9.1	7.2
Interior counties	3,011	2,295	315	198	203	76.2	10.5	6.6	6.7
Southern California	4,224	3,004	433	407	380	71.1	10.3	9.6	9.0
Los Angeles	2,241	1,630	216	205	190	72.7	9.6	9.2	8.5
Other counties	1,983	1,374	217	202	190	69.3	10.9	10.2	9.6
Northern and Central California	13,708	10,178	1,525	1,043	962	74.3	11.1	7.6	7.0
Coast counties	9,810	7,224	1,105	784	697	73.6	11.3	8.0	7.1
Interior counties	3,898	2,954	420	259	265	75.8	10.8	6.6	6.8
Metropolitan area	7,460	5,458	871	594	537	73.1	11.7	8.0	7.2
Rural counties	6,248	4,720	654	449	425	75.5	10.5	7.2	6.8

Of the 17,932 marriages registered in 1905–1906, 13,182 or 73.5 per cent were first marriages for both parties, neither groom nor bride having ever been married before. The per cent of marriages with both parties single is highest for the coast counties of Northern California, 76.8, the interior counties of Central California, 76.2, and for San Francisco, 76.0. It is lowest, 69.3, for Southern California outside Los Angeles, and next lowest, 69.4, for the bay counties other than San Francisco. The per cent of marriages where neither party was married before is higher for Northern and Central California than for Southern California and north of Tehachapi is higher for the rural counties than for the metropolitan area.

In 1,958 cases, or 10.9 per cent of all, the marriage was the first of the groom only, and in 1,450 cases, or 8.1 per cent, it was the first of the bride only. As a rule, the number of single men marrying widowed or divorced women is greater than the number of single women marrying widowed or divorced men. No geographical division shows a variation from this rule, and exceptions to the rule appear for only nine counties, Plumas, Siskiyou, Monterey, San Benito, San Luis Obispo, Santa Cruz, Kings, Riverside, and Santa Barbara.

In no more than 1,342 instances, or 7.5 per cent of the total number, was the marriage the second or over of both the groom and the bride, each party having been married once or more before. The per cent of marriages where both parties had been previously married is highest, 9.6, for the six counties of Southern California other than Los Angeles, followed by 9.0 for the bay counties other than San Francisco and by 8.5 for Los Angeles. The per cent of marriages where neither party was single is lowest of all, 5.8, for San Francisco, next, 6.1, for the coast counties of Northern California, and next, 6.7, for the interior counties of Central California. The per cent of such marriages is somewhat higher for the metropolitan area than for the rural counties of Northern and Central California, being 7.2 for the former, against 6.8 for the latter.

Status of Parties.—Table 4 shows for each geographic division the civil status or marital condition of both grooms and brides—whether single, widowed, or divorced—at the time of marriage.

TABLE 4.—*Grooms and Brides classified by Marital Condition, with Per Cent Distributions, for Geographic Divisions: 1905-1906.*

Geographic Division.	Totals.	Grooms.			Brides.		
		Single.	Widow'd	Divorced.	Single.	Widow'd.	Divorced.
NUMBERS.							
THE STATE	17,932	15,140	1,655	1,137	14,632	1,891	1,409
Northern California	1,693	1,472	156	65	1,388	203	102
Coast counties	806	708	71	27	668	96	42
Interior counties	887	764	85	38	720	107	60
Central California	12,015	10,231	1,001	783	9,833	1,194	988
San Francisco	4,230	3,673	311	246	3,529	388	313
Other bay counties	3,230	2,656	304	270	2,523	366	341
Coast counties	1,544	1,292	144	108	1,288	138	118
Interior counties	3,011	2,610	242	159	2,493	302	216
Southern California	4,224	3,437	498	289	3,411	494	319
Los Angeles	2,241	1,846	240	155	1,835	246	160
Other counties	1,983	1,591	258	134	1,576	248	159
Northern and Central California	13,708	11,703	1,157	848	11,221	1,397	1,090
Coast counties	9,810	8,329	830	651	8,008	988	814
Interior counties	3,898	3,374	327	197	3,213	409	276
Metropolitan area	7,460	6,329	615	516	6,052	754	654
Rural counties	6,248	5,374	542	332	5,169	643	436

TABLE 4.—*Grooms and Brides classified by Marital Condition, with Per Cent Distributions, for Geographic Divisions: 1905–1906—Continued.*

Geographic Division.	Totals.	Grooms.			Brides.		
		Single.	Widow'd	Divorced.	Single.	Widow'd	Divorced.
PER CENTS.							
THE STATE	100.0	84.4	9.2	6.4	81.6	10.5	7.9
Northern California	100.0	87.0	9.2	3.8	82.0	12.0	6.0
Coast counties	100.0	87.8	8.8	3.4	82.9	11.9	5.2
Interior counties	100.0	86.1	9.6	4.3	81.2	12.0	6.8
Central California	100.0	85.4	8.3	6.5	81.8	10.0	8.2
San Francisco	100.0	86.8	7.4	5.8	83.4	9.2	7.4
Other bay counties	100.0	82.2	9.4	8.4	78.1	11.3	10.6
Coast counties	100.0	83.7	9.3	7.0	83.4	8.9	7.7
Interior counties	100.0	86.7	8.0	5.3	82.8	10.0	7.2
Southern California	100.0	81.4	11.8	6.8	80.7	11.7	7.6
Los Angeles	100.0	82.4	10.7	6.9	81.9	11.0	7.1
Other counties	100.0	80.2	13.0	6.8	79.5	12.5	8.0
Northern and Central California	100.0	85.4	8.4	6.2	81.9	10.2	7.9
Coast counties	100.0	84.9	8.5	6.6	81.6	10.1	8.3
Interior counties	100.0	86.6	8.4	5.0	82.4	10.5	7.1
Metropolitan area	100.0	84.8	8.3	6.9	81.1	10.1	8.8
Rural counties	100.0	86.0	8.7	5.3	82.7	10.3	7.0

It appears from Table 4 that 15,140 or 84.4 per cent of the grooms were single, 1,655 or 9.2 per cent were widowed, and 1,137 or 6.4 per cent were divorced. Among the brides the single numbered 14,632 or 81.6 per cent, the widowed 1,891 or 10.5 per cent, and the divorced 1,409 or 7.9 per cent. The widows outnumber the widowers by 236 or 14.3 per cent, and the number of divorced women exceeds that of divorced men by 272 or 23.9 per cent.

The per cent of widowers is particularly high (11.8) in Southern California, being 10.7 for Los Angeles and 13.0 for the other six counties. The per cent of widows is also highest (12.5) for the six counties of Southern California other than Los Angeles, and is next highest, 12.0 and 11.9 respectively, for the interior and coast counties of Northern California.

The per cent divorced, both among grooms and brides, is highest for the bay counties other than San Francisco, and next for Southern California, especially outside Los Angeles. While the per cent of divorced grooms is only 6.4 for the State, it is 8.4 for the four counties adjoining San Francisco, 6.9 for Los Angeles and 6.8 for the other six counties of Southern California, being 8.3 for Orange county. Similarly, as compared with 7.9 for the State, the per cent of divorced brides is 10.6 for the four counties suburban to San Francisco, and 8.0 for the six counties of Southern California other than Los Angeles, being 10.0 for Orange against 7.1 for Los Angeles. Though the per cent of divorced brides is only 7.4 for San Francisco, it is 8.9 for Alameda, 9.0 for Contra Costa, 14.1 for San Mateo, and 15.5 for Marin. But as heretofore explained, residents of the metropolis often prefer to be married in the suburbs and this seems to be especially the case among divorced persons.

TABLE 5.—*Marriages classified by Number in Order and Marital Condition of Parties,*

County.	Total Marriages.	Number of Marriage.				Groom.		
		1st of Both Parties.	1st of Gro'm Only.	1st of Bride Only.	2d or Over of Both.	Single.	Widowed.	Divorc'd
The State	17,932	13,182	1,958	1,450	1,342	15,140	1,655	1,137
Northern California	1,693	1,278	194	110	111	1,472	156	65
Coast counties	806	619	89	49	49	708	71	27
Del Norte	15	12	2	1	-----	14	1	-----
Humboldt	170	136	18	10	6	154	12	4
Lake	32	27	1	1	3	28	3	1
Mendocino	181	134	22	13	12	156	20	5
Napa	159	114	21	10	14	135	15	9
Sonoma	237	186	23	14	14	209	20	8
Trinity	12	10	2	-----	-----	12	-----	-----
Interior counties	887	659	105	61	62	764	85	38
Butte	103	75	14	8	6	89	8	6
Colusa	38	30	3	3	2	33	2	3
Glenn	35	25	6	1	3	31	3	1
Lassen	30	20	4	3	3	24	5	1
Modoc	44	38	5	1	-----	43	1	-----
Nevada	118	82	18	7	11	100	11	7
Placer	41	30	6	2	3	36	1	4
Plumas	30	26	1	2	1	27	3	-----
Shasta	132	87	20	11	14	107	16	9
Sierra	16	13	2	1	-----	15	-----	1
Siskiyou	111	84	8	9	10	92	15	4
Sutter	35	28	5	2	-----	33	2	-----
Tehama	81	64	8	7	2	72	8	1
Yuba	73	57	5	4	7	62	10	1
Central California	12,015	8,900	1,331	933	851	10,231	1,001	783
San Francisco	4,230	3,217	456	312	245	3,673	311	246
Other bay counties	3,230	2,241	415	282	292	2,656	304	270
Alameda	2,221	1,611	238	179	193	1,849	210	162
Contra Costa	155	110	22	12	11	132	16	7
Marin	619	368	116	66	69	484	55	80
San Mateo	235	152	39	25	19	191	23	21
Coast counties	1,544	1,147	145	141	111	1,292	144	108
Monterey	153	110	14	20	9	124	14	15
San Benito	66	56	3	4	3	59	5	2
San Luis Obispo	179	140	14	18	7	154	17	8
Santa Clara	921	681	95	76	69	776	83	62
Santa Cruz	225	160	19	23	23	179	25	21

with Per Cents Distributions, for Counties arranged Geographically: 1905–1906.

Bride.			Per Cent of Marriages.				Per Cent of Grooms.			Per Cent of Brides.		
Single.	Widowed.	Divorced.	1st of Both Parties.	1st of Gro'm Only.	1st of Bride Only.	2d or Over of Both.	Single.	Widowed.	Divorc'd	Single	Widowed.	Divorc'd
14,632	1,891	1,409	73.5	10.9	8.1	7.5	84.4	9.2	6.4	81.6	10.5	7.9
1,388	203	102	75.5	11.5	6.5	6.5	87.0	9.2	3.8	82.0	12.0	6.0
668	96	42	76.8	11.0	6.1	6.1	87.8	8.8	3.4	82.9	11.9	5.2
13	1	1	80.0	13.3	6.7	------	93.3	6.7	------	86.6	6.7	6.7
146	17	7	80.0	10.6	5.9	3.5	90.6	7.1	2.3	85.9	10.0	4.1
28	3	1	84.4	3.1	3.1	9.4	87.5	9.4	3.1	87.5	9.4	3.1
147	24	10	74.0	12.2	7.2	6.6	86.2	11.0	2.8	81.2	13.3	5.5
124	26	9	71.7	13.2	6.3	8.8	84.9	9.4	5.7	78.0	16.3	5.7
200	24	13	78.5	9.7	5.9	5.9	88.2	8.4	3.4	84.4	10.1	5.5
10	1	1	83.3	16.7	------	------	100.0	------	------	83.4	8.3	8.3
720	107	60	74.3	11.8	6.9	7.0	86.1	9.6	4.3	81.2	12.0	6.8
83	13	7	72.8	13.6	7.8	5.8	86.4	7.8	5.8	80.6	12.6	6.8
33	4	1	78.9	7.9	7.9	5.3	86.8	5.3	7.9	86.8	10.5	2.7
26	6	3	71.4	17.1	2.9	8.6	88.5	8.6	2.9	74.3	17.1	8.6
23	6	1	66.7	13.3	10.0	10.0	80.0	16.7	3.3	76.7	20.0	3.3
39	4	1	86.3	11.4	2.3	------	97.7	2.3	------	88.6	9.1	2.3
89	19	10	69.5	15.3	5.9	9.3	84.8	9.3	5.9	75.4	16.1	8.5
32	6	3	73.2	14.6	4.9	7.3	87.8	2.4	9.8	78.1	14.6	7.3
28	2	------	86.7	3.3	6.7	3.3	90.0	10.0	------	93.3	6.7	------
98	19	15	65.9	15.7	8.3	10.6	81.1	12.1	6.8	74.2	14.4	11.4
14	1	1	81.3	12.5	6.2	------	93.8	6.2	------	87.5	6.3	6.2
93	9	9	75.7	7.2	8.1	9.0	82.9	13.5	3.6	83.8	8.1	8.1
30	1	4	80.0	14.3	5.7	------	94.3	5.7	------	85.7	2.9	11.4
71	7	3	79.0	9.9	8.6	2.5	88.9	9.9	1.2	87.7	8.6	3.7
61	10	2	78.1	6.8	5.5	9.6	84.9	13.7	1.4	83.6	13.7	2.7
9,833	1,194	988	74.1	11.1	7.7	7.1	85.4	8.3	6.5	81.8	10.0	8.2
3,529	388	313	76.0	10.8	7.4	5.8	86.8	7.4	5.8	83.4	9.2	7.4
2,523	366	341	69.4	12.9	8.7	9.0	82.2	9.4	8.4	78.1	11.3	10.6
1,790	233	198	72.5	10.7	8.1	8.7	83.2	9.5	7.3	80.6	10.5	8.9
122	19	14	71.0	14.2	7.7	7.1	85.2	10.3	4.5	78.7	12.3	9.0
434	89	96	59.5	18.7	10.7	11.1	78.2	8.9	12.9	70.1	14.4	15.5
177	25	33	64.7	16.6	10.6	8.1	81.3	9.8	8.9	75.3	10.6	14.1
1,288	138	118	74.3	9.4	9.1	7.2	83.7	9.3	7.0	83.4	8.9	7.7
130	11	12	71.9	9.1	13.1	5.9	81.1	9.1	9.8	85.0	7.2	7.8
60	2	4	84.9	4.5	6.1	4.5	89.4	7.6	3.0	90.9	3.0	6.1
158	15	6	78.2	7.8	10.1	3.9	86.0	9.5	4.5	88.3	8.4	3.3
757	89	75	73.9	10.3	8.3	7.5	84.3	9.0	6.7	82.2	9.7	8.1
183	21	21	71.1	8.5	10.2	10.2	79.6	11.1	9.3	81.4	9.3	9.3

TABLE 5.—*Marriages classified by Number in Order and Marital Condition of Parties.*

County.	Total Marriages.	Number of Marriage.				Groom.		
		1st of Both Parties.	1st of Gro'm Only.	1st of Bride Only.	2d or Over of Both.	Single.	Widowed.	Divorc'd
Central California—Continued.								
Interior counties	3,011	2,295	315	198	203	2,610	242	159
Alpine	1	1	------	------	------	1	------	------
Amador	56	44	8	3	1	52	4	------
Calaveras	51	42	4	3	2	46	2	3
El Dorado	56	54	1	1	------	55	1	------
Fresno	491	390	38	31	32	428	46	17
Inyo	30	28	1	1	------	29	1	------
Kern	140	95	26	10	9	121	10	9
Kings	112	95	4	8	5	99	9	4
Madera	40	35	3	1	1	38	1	1
Mariposa	11	11	------	------	------	11	------	------
Merced	75	60	9	3	3	69	4	2
Mono	5	5	------	------	------	5	------	------
Sacramento	826	585	108	63	70	693	71	62
San Joaquin	456	325	52	43	36	377	43	36
Solano	158	122	15	9	12	137	14	7
Stanislaus	104	84	8	6	6	92	8	4
Tulare	205	165	17	10	13	182	15	8
Tuolumne	99	77	11	4	7	88	8	3
Yolo	95	77	10	2	6	87	5	3
Southern California	4,224	3,004	433	407	380	3,437	498	289
Los Angeles	2,241	1,630	216	205	190	1,846	240	155
Other counties	1,983	1,374	217	202	190	1,591	258	134
Orange	421	284	46	39	52	330	56	35
Riverside	266	193	24	25	24	217	32	17
San Bernardino	453	339	42	40	32	381	51	21
San Diego	480	307	61	61	51	368	75	37
Santa Barbara	226	147	29	30	20	176	35	15
Ventura	137	104	15	7	11	119	9	9
Northern and Central California	13,708	10,178	1,525	1,043	962	11,703	1,157	848
Coast counties	9,810	7,224	1,105	784	697	8,329	830	651
Interior counties	3,898	2,954	420	259	265	3,374	327	197
Metropolitan area	7,460	5,458	871	594	537	6,329	615	516
Rural counties	6,248	4,120	654	449	425	5,374	542	332

with Per Cents Distributions, for Counties arranged Geographically: 1905-1906—Continued.

Bride.			Per Cent of Marriages.				Per Cent of Grooms.			Per Cent of Brides.		
Single.	Widowed.	Divorced.	1st of Both Parties.	1st of Gro'm Only.	1st of Bride Only.	2d or Over of, Both.	Single.	Widowed.	Divorc'd	Single	Widowed.	Divorc'd
2,493	302	216	76.2	10.5	6.6	6.7	86.7	8.0	5.3	82.8	10.0	7.2
1	--------	--------	100.0	. .	------	------	100.0	------	-----	100.0	------	------
47	7	2	78.6	14.8	5.3	1.8	92.9	7.1	------	83.9	12.5	3.6
45	1	5	82.4	7.8	5.9	3.9	90.2	3.9	5.9	88.2	2.0	9.8
55	-------	1	96.4	1.8	1.8	------	98.2	1.8	-----	98.2	------	1.8
421	50	20	79.4	7.8	6.3	6.5	87.2	9.4	3.4	85.7	10.2	4.1
29	1	--------	93.4	3.3	3.3	------	96.7	3.3	----	96.7	3.3	------
105	22	13	67.9	18.6	7.1	6.4	86.4	7.2	6.4	75.0	15.7	9.3
103	7	2	84.8	3.6	7.1	4.5	88.4	8.0	3.6	92.0	6.2	1.8
36	3	1	87.5	7.5	2.5	2.5	95.0	2.5	2.5	90.0	7.5	2.5
11	--------	--------	100.0	------	------	------	100.0	------	------	100.0	------	------
63	5	7	80.0	12.0	4.0	4.0	92.0	15.3	2.7	84.0	6.7	9.3
5	--------	--------	100.0	------	------	------	100.0	------	------	100.0	------	------
648	92	86	70.8	13.1	7.6	8.5	83.9	8.6	7.5	78.5	11.1	10.4
368	49	39	71.3	11.4	9.4	7.9	82.7	9.4	7.9	80.7	10.7	8.6
131	14	13	77.2	9.5	5.7	7.6	86.7	8.9	4.4	82.9	8.9	8.2
90	10	4	80.7	7.7	5.8	5.8	88.4	7.7	3.9	86.5	9.6	3.9
175	16	14	80.5	8.3	4.9	6.3	88.8	7.3	3.9	85.4	7.8	6.8
81	15	3	77.8	11.1	4.0	7.1	88.9	8.1	3.0	81.8	15.2	3.0
79	10	6	81.1	10.5	2.1	6.3	91.6	5.3	3.1	83.2	10.5	6.3
3,411	494	319	71.1	10.3	9.6	9.0	81.4	11.8	6.8	80.7	11.7	7.6
1,835	246	160	72.7	9.6	9.2	8.5	82.4	10.7	6.9	81.9	11.0	7.1
1,576	248	159	69.8	10.9	10.2	9.6	80.2	13.0	6.8	79.5	12.5	8.0
323	56	42	67.5	10.9	9.3	12.3	78.4	13.3	8.3	76.7	13.3	10.0
218	26	22	72.6	9.0	9.4	9.0	81.6	12.0	6.4	81.9	9.8	8.3
379	49	25	74.8	9.3	8.8	7.1	84.1	11.3	4.6	83.7	10.8	5.5
368	68	44	64.0	12.7	12.7	10.6	76.7	15.6	7.7	76.7	14.2	9.1
177	32	17	65.1	12.8	13.3	8.8	77.9	15.5	6.6	78.3	14.2	7.5
111	17	9	75.9	11.0	5.1	8.0	86.8	6.6	6.6	81.0	12.4	6.6
11,221	1,397	1,090	74.3	11.1	7.6	7.0	85.4	8.4	6.2	81.9	10.2	7.9
8,008	988	814	73.6	11.3	8.0	7.1	84.9	8.5	6.6	81.6	10.1	8.3
3,213	409	276	75.8	10.8	6.6	6.8	86.6	8.4	5.0	82.4	10.5	7.1
6,052	754	654	73.1	11.7	8.0	7.2	84.8	8.3	6.9	81.1	10.1	8.8
5,169	643	436	75.5	10.5	7.2	6.8	86.0	8.7	5.3	82.7	10.3	7.0

CENSUS STATISTICS ON MARITAL CONDITION: 1900 AND 1890.

Summary.—Census statistics on marital condition show that of the male population at least 15 years of age in California in 1900, 48.8 per cent were single, 44.9 per cent married, 4.7 per cent widowed, and 0.6 per cent divorced, 1.0 per cent being unknown. Of the female population of the same age, 31.1 per cent were single, 55.2 per cent married, 12.5 per cent widowed, and 0.9 per cent divorced, 0.3 per cent being unknown. The proportion single was greater and the proportion married less among males in California than in the United States, though the per cents single and married among females were not far from the same for this State as for the whole country. Between 1890 and 1900 the proportion of married men increased greatly in California on account of the growing equalization in the proportion of the sexes.

The per cent widowed among both males and females was substantially the same for California as for the United States in 1900 as well as 1890, but the per cent divorced for each sex was about twice as great for the Golden State as for the entire country at each census.

The proportion married among men is somewhat higher for cities of 25,000 population than for rural districts, including smaller cities, and is highest of all in California in Los Angeles and next in Oakland. The proportion married among women is considerably higher for rural districts than for the principal cities as a group, and is highest among the cities in Los Angeles and next in Sacramento.

Among the four principal cities Sacramento has the highest per cent of widowers and San Francisco has the highest per cent of widows. Sacramento also has the highest per cent divorced, both among men and women.

The maximum per cent married among males is at the age period 45 to 54 years—82.2 for the United States and 65.8 for California. The maximum per cent married among females, however, is at the next earlier age period, 35 to 44 years—79.5 for the entire country and 77.5 for the Golden State.

The maximum per cent widowed for each sex in both the United States and California is at the highest age period distinguished, 65 years and over.

The per cent divorced, however, is at its maximum for males at the age periods 45 to 54 and 55 to 64, and for females at still earlier age periods, 30 to 34 and 35 to 44.

The maximum per cent married among males is higher for cities of 100,000 population than for the rest of California, but the maximum per cent married among females is higher outside the two leading cities than within them. The maximum per cents married, among both men and women, are higher for Los Angeles than for San Francisco.

The maximum per cent of both widowers and widows is higher for cities of 100,000 population than for the rest of the State, and is also higher for San Francisco than for Los Angeles.

In all cases the maximum per cent divorced appears later in life among men than among women.

For each sex in both the United States and California the proportion married is considerably higher for foreign-born than for native whites, but is nevertheless lower for descendants of foreigners than for persons of purely native stock. The same holds as to the proportions widowed. The per cent divorced for both sexes, however, is highest for native whites of native parentage, and is about the same for native whites of foreign parentage as for foreign-born whites themselves.

Generally speaking, what has just been said about the proportions married, widowed, and divorced in the United States and California holds true likewise for the two cities of 100,000 population and the rest of the Golden State.

As for the total population, so for each element of the white population, the maximum per cent married among males is at the age period 45 to 54, and among females at the age period 35 to 44, though in California the maximum per cent married among foreign-born white females is at an even earlier age period, 30 to 34 years. In all cases the maximum per cent widowed is at the age period 65 years and over, being about the same for each element. In every instance, also, the maximum per cent divorced is at a higher age period for males than for females.

United States and California.—Statistics of the Federal Census show the civil status or marital condition of the population—whether single, married, widowed, or divorced—at the dates when the last two censuses were taken in 1890 and 1900, respectively. Since practically all persons under 15 years of age are single this discussion is restricted throughout to the population at least 15 years of age, and, moreover, since marriage is essentially a sex relation the facts are considered not for both sexes together but always for males and females separately. The following table summarizes the data on marital condition for California in comparison with continental United States (the mainland south of the Canadian boundary) for 1900 and 1890:

TABLE 1.—*Population at Least 15 Years of Age classified by Sex and Marital Condition, with Per Cents, for United States and California: 1900 and 1890.*

	Total.	Single.	Married.	Widowed.	Divorced.	Unknown.
NUMBERS.						
UNITED STATES.						
Males— 1900	25,620,399	10,297,940	13,955,650	1,177,976	84,230	104,603
1890	20,777,872	8,655,711	11,205,205	815,437	49,100	52,419
Females—1900	24,249,191	7,566,530	13,810,057	2,717,715	114,647	40,242
1890	19,602,178	6,233,316	11,124,785	2,154,598	71,883	17,596
CALIFORNIA.						
Males— 1900	623,708	304,284	280,007	29,385	4,066	5,966
1890	533,145	288,343	216,029	19,222	2,586	6,965
Females—1900	471,514	146,754	260,277	59,048	4,268	1,167
1890	345,585	110,217	194,613	37,665	2,393	697

TABLE 1.—*Population at Least 15 Years of Age classified by Sex and Marital Condition, with Per Cents, for United States and California: 1900 and 1890—Continued.*

	Total.	Single.	Married.	Widowed.	Divorced.	Unknown.
PER CENTS.						
UNITED STATES.						
Males— 1900	100.0	40.2	54.5	4.6	0.3	0.4
1890	100.0	41.7	53.9	3.9	0.2	0.3
Females—1900	100.0	31.2	56.9	11.2	0.5	0.2
1890	100.0	31.8	56.7	11.0	0.4	0.1
CALIFORNIA.						
Males— 1900	100.0	48.8	44.9	4.7	0.6	1.0
1890	100.0	54.1	40.5	3.6	0.5	1.3
Females—1900	100.0	31.1	55.2	12.5	0.9	0.3
1890	100.0	31.9	56.3	10.9	0.7	0.2

Noticing only the per cents, one observes from the preceding table that at each census the proportion single was considerably greater and the proportion married was considerably less among males in California than in the United States, the differences being much smaller, however, in 1900 than in 1890. Among females, on the other hand, the per cents single and married were not far from the same for the Golden State as for the entire country at each census. Between 1890 and 1900 the per cent married increased slightly for both males and females in the United States and also increased greatly for males in California while decreasing somewhat for females. The notable increase in the proportion married among men in California is explained by the growing equalization of the sexes, the per cent male in the population of this State having fallen from 57.9 in 1890 to 55.3 in 1900. Thus the excess in the per cent married among women over that for men fell from 15.8 to 10.3 between 1890 and 1900, and similarly the excess in the per cent of males in the population over that for females dropped from 15.8 to 10.8 in the decade.

The per cent widowed was substantially the same in California as in the United States among males at each census and among females in 1890. The exceptional decrease in the per cent married among females in this State, noted above, is due to a considerable increase in the per cent widowed between 1890 and 1900. The per cent divorced, both among males and females, was about twice as great in California as in the United States at each census. In this State, as in the whole country, a larger proportion of women than of men are reported by the census as being widowed as well as divorced.

Cities and Rural Districts.—The Federal Census publishes statistics on marital condition not only for states and territories, but also for cities having at least 25,000 inhabitants. At the censuses of 1890 and 1900 there were four such cities in California—San Francisco, Los Angeles, Oakland, and Sacramento. The statistics at both censuses for each of these cities as well as for all four in contrast with the rural districts of the State appear in Table 2. Under "rural districts" are included all cities having less than 25,000 inhabitants, as well as country districts proper.

TABLE 2.—*Population at Least 15 Years of Age classified by Sex and Marital Condition, with Per Cents, for Cities of 25,000 Inhabitants and Rural Districts of California: 1900 and 1890.*

	Total.	Single.	Married.	Widowed.	Divorced.	Unknown.
NUMBERS.						
CITIES OF 25,000.						
Males— 1900	220,495	103,150	103,622	9,239	1,234	3,250
1890	183,305	99,074	75,235	5,699	626	2,674
Females—1900	192,919	64,646	98,192	27,607	1,800	674
1890	136,175	47,142	70,713	17,109	989	222
San Francisco.						
Males— 1900	145,785	72,621	63,820	6,100	748	2,496
1890	133,861	75,912	51,244	4,097	407	2,201
Females—1900	118,553	40,984	58,932	17,261	1,011	365
1890	93,818	33,689	47,464	11,871	627	167
Los Angeles.						
Males— 1900	37,777	14,519	21,066	1,539	269	384
1890	19,430	8,226	10,319	641	99	145
Females—1900	38,883	12,111	20,807	5,396	406	163
1890	17,211	5,212	9,726	2,108	145	20
Oakland.						
Males— 1900	24,495	9,975	13,138	1,049	137	196
1890	17,821	7,911	9,173	561	66	110
Females—1900	25,314	8,435	13,019	3,566	250	44
1890	17,081	5,681	9,180	2,071	121	28
Sacramento.						
Males— 1900	12,438	6,035	5,598	551	80	174
1890	12,193	7,025	4,499	400	54	215
Females—1900	10,169	3,116	5,434	1,384	133	102
1890	8,065	2,560	4,343	1,059	96	7
RURAL DISTRICTS.						
Males— 1900	403,213	201,134	176,385	20,146	2,832	2,716
1890	349,840	189,269	140,794	13,523	1,960	4,294
Females—1900	278,595	82,108	162,085	31,441	2,468	493
1890	209,410	63,075	123,900	20,556	1,404	475
PER CENTS.						
CITIES OF 25,000.						
Males— 1900	100.0	46.8	47.0	4.2	0.5	1.5
1890	100.0	54.1	41.0	3.1	0.3	1.5
Females—1900	100.0	33.5	50.9	14.3	0.9	0.4
1890	100.0	34.6	51.9	12.6	0.7	0.2
San Francisco.						
Males— 1900	100.0	49.8	43.8	4.2	0.5	1.7
1890	100.0	56.7	38.3	3.1	0.3	1.6
Females—1900	100.0	34.6	49.7	14.6	0.8	0.3
1890	100.0	35.9	50.6	12.6	0.7	0.2
Los Angeles.						
Males— 1900	100.0	38.4	55.8	4.1	0.7	1.0
1890	100.0	42.3	53.1	3.3	0.5	0.8
Females—1900	100.0	31.2	53.5	13.9	1.0	0.4
1890	100.0	30.3	56.5	12.3	0.8	0.1
Oakland.						
Males— 1900	100.0	40.7	53.6	4.3	0.6	0.8
1890	100.0	44.4	51.5	3.1	0.4	0.6
Females—1900	100.0	33.3	51.4	14.1	1.0	0.2
1890	100.0	33.3	53.7	12.1	0.7	0.2
Sacramento.						
Males— 1900	100.0	48.5	45.0	4.4	0.7	1.4
1890	100.0	57.6	36.9	3.3	0.4	1.8
Females—1900	100.0	30.7	53.4	13.6	1.3	1.0
1890	100.0	31.7	53.9	13.1	1.2	0.1
RURAL DISTRICTS.						
Males— 1900	100.0	49.9	43.7	5.0	0.7	0.7
1890	100.0	54.1	40.2	3.9	0.6	1.2
Females—1900	100.0	29.4	58.2	11.3	0.9	0.2
1890	100.0	30.1	59.2	9.8	0.7	0.2

Examination of the per cents in Table 2, relating to cities of 25,000 inhabitants and the rural districts of California, shows that the increase in the per cent married among males, heretofore noted, appeared in each of the four principal cities as well as in the rural districts of the State. The increase was considerably greater for the four cities together than for the rural districts, while among the individual cities the increase was greatest for Sacramento and next for San Francisco. The decrease in the per cent married among females, which likewise appeared in each city as well as in the rural districts, was the same for the four cities together as for the rural districts, and among the individual cities was greatest for Los Angeles and next for Oakland. The proportion married among men is somewhat higher in cities than in rural districts, being highest of all in Los Angeles and next in Oakland. On the other hand, the proportion married among women is considerably higher in rural districts than in cities of 25,000 population, being highest among the cities in Los Angeles and next in Sacramento.

Between 1890 and 1900 the per cents widowed and divorced, both among males and females, increased in each of the four principal cities as well as in the rural districts. The per cent of widowers is somewhat less for cities of 25,000 inhabitants than for rural districts, while the per cent of widows is considerably greater in these cities than in the rural districts. Among the cities the highest per cent of widowers is in Sacramento, and of widows in San Francisco. There is little variance between urban and rural districts in the per cent divorced among men, and none at all in the per cent divorced among women. The per cent divorced, among men as well as women, is highest in Sacramento.

Age.—Age is an important factor in connection with marriage. To facilitate comparisons for the eight age periods distinguished by the Federal Census, the statistical data herewith presented are limited to per cent distributions, the first table showing the facts for the United States in contrast with California in 1900.

TABLE 3.—*Per Cent Distribution, by Marital Condition, of Population at Least 15 Years of Age, classified by Sex and Age Periods, for United States and California: 1900.*

	PER CENT DISTRIBUTION BY MARITAL CONDITION.									
	15 Years and Over.	15 to 19 Years.	20 to 24 Years.	25 to 29 Years.	30 to 34 Years.	35 to 44 Years.	45 to 54 Years.	55 to 64 Years.	65 Years and Over.	Age Unknown
UNITED STATES.										
Males.										
Single	40.2	98.8	77.6	45.8	27.6	16.9	10.3	7.6	5.7	28.6
Married	54.5	1.0	21.6	52.5	69.8	78.8	82.2	79.7	67.1	28.5
Widowed	4.6	*	0.4	1.2	2.0	3.6	6.8	11.9	26.4	3.5
Divorced	0.3	*	0.1	0.2	0.4	0.5	0.6	0.6	0.5	0.3
Unknown	0.4	0.2	0.3	0.3	0.2	0.2	0.1	0.2	0.3	39.1
Females.										
Single	31.2	88.7	51.6	27.5	16.6	11.1	7.8	6.6	6.0	24.6
Married	56.9	10.9	46.5	68.9	78.0	79.5	73.9	60.5	34.2	40.1
Widowed	11.2	0.2	1.4	2.9	4.6	8.6	17.6	32.3	59.3	15.7
Divorced	0.5	0.1	0.4	0.6	0.7	0.7	0.6	0.5	0.3	0.7
Unknown	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	18.9

h of 1 per cent.

TABLE 3.—*Per Cent Distribution, by Marital Condition, of Population at Least 15 Years of Age, classified by Sex and Age Periods, for United States and California: 1900—Continued.*

	PER CENT DISTRIBUTION BY MARITAL CONDITION.									
	15 Years and Over.	15 to 19 Years.	20 to 24 Years.	25 to 29 Years.	30 to 34 Years.	35 to 44 Years.	45 to 54 Years.	55 to 64 Years.	65 Years and Over.	Age Unknown
CALIFORNIA.										
Males.										
Single	48.8	99.4	88.4	64.4	45.7	34.4	26.8	23.7	20.4	31.1
Married	44.9	0.4	10.8	34.0	51.8	61.5	65.8	63.3	54.7	19.5
Widowed	4.7	*	0.1	0.7	1.5	2.9	6.0	11.5	23.3	1.9
Divorced	0.6	*	0.1	0.4	0.6	0.8	1.1	1.2	1.1	0.2
Unknown	1.0	0.2	0.6	0.5	0.4	0.4	0.3	0.3	0.5	47.3
Females.										
Single	31.1	92.2	60.0	32.9	18.7	11.2	6.3	4.8	4.2	22.0
Married	55.2	7.5	38.3	63.3	75.1	77.5	71.4	58.1	35.7	40.3
Widowed	12.5	0.1	0.9	2.6	4.8	9.8	21.0	36.4	59.4	13.2
Divorced	0.9	0.1	0.6	1.1	1.3	1.4	1.2	0.7	0.5	0.7
Unknown	0.3	0.1	0.2	0.1	0.1	0.1	0.1	*	0.2	23.8

* Less than one tenth of 1 per cent.

The preceding table shows that the per cent single invariably decreases at successive age periods, but that the per cent married, after increasing through the prime of life, then decreases with the rise in the per cent widowed among old-aged persons. The age period, 45 to 54 years, shows the maximum per cent married among males—82.2 in the United States and 65.8 in California. The maximum per cent married among females, however, is at the next earlier age period, 35 to 44 years, being 79.5 for the entire country and 77.5 for the Golden State. Among males as well as females, and in both the United States and California, the per cent widowed rises at successive age periods to the maximum at the highest period distinguished, 65 years and over. On the other hand, the per cent divorced, like the per cent married, first rises and then falls. The per cent divorced among males is highest at the age periods 45 to 54 and 55 to 64, being 0.6 in each case for the United States, and 1.1 and 1.2, respectively, for California. The maximum per cent divorced among females, however, appears at earlier age periods, 30 to 34 and 35 to 44, the per cent being 0.7 in both instances for the entire country, and 1.3 and 1.4, respectively, for the Golden State.

Corresponding figures for the cities of 100,000 inhabitants, San Francisco and Los Angeles, in contrast with the rest of California, appear in Table 4, on page 78. The returns for cities of less than 100,000 population in 1900 were not tabulated by the Federal Census, so that Oakland and Sacramento can not be shown separately, but must be included in the rest of the State outside the two leading cities, San Francisco and Los Angeles.

TABLE 4.—*Per Cent Distribution, by Marital Condition, of Population at Least 15 Years of Age, classified by Sex and Age Periods, for Cities of 100,000 Inhabitants and Rest of California: 1900.*

	PER CENT DISTRIBUTION BY MARITAL CONDITION.									
	15 Years and Over.	15 to 19 Years.	20 to 24 Years.	25 to 29 Years.	30 to 34 Years.	35 to 44 Years.	45 to 54 Years.	55 to 64 Years.	65 Years and Over.	Age Unknown.
CITIES OF 100,000.										
Males.										
Single	47.5	99.4	87.6	63.9	44.1	32.4	23.0	18.3	15.6	36.0
Married	46.2	0.5	11.1	34.2	53.3	63.6	69.6	68.0	58.4	14.4
Widowed	4.2	*	0.1	0.7	1.4	2.8	6.0	12.5	24.9	1.0
Divorced	0.5	----	0.1	0.3	0.5	0.8	1.0	1.0	0.8	0.1
Unknown	1.6	0.1	1.1	0.9	0.7	0.4	0.4	0.2	0.3	48.5
Females.										
Single	33.7	93.6	64.7	37.6	22.1	13.8	7.9	6.3	5.9	23.9
Married	50.7	6.1	33.7	58.1	70.3	71.8	63.9	49.3	27.8	30.2
Widowed	14.4	0.1	1.0	3.1	6.2	12.9	27.1	43.8	65.6	11.9
Divorced	0.9	0.1	0.5	1.1	1.3	1.4	1.0	0.6	0.4	0.7
Unknown	0.3	0.1	0.1	0.1	0.1	0.1	0.1	*	0.3	33.3
SAN FRANCISCO.										
Males.										
Single	49.8	99.4	88.4	65.9	46.6	35.2	25.3	20.4	17.6	37.6
Married	43.8	0.5	10.2	32.2	50.8	60.8	67.2	65.3	55.5	13.4
Widowed	4.2	*	0.1	0.6	1.4	2.8	6.3	13.2	25.9	0.7
Divorced	0.5	----	0.1	0.3	0.4	0.8	0.9	0.9	0.7	0.1
Unknown	1.7	0.1	1.2	1.0	0.8	0.4	0.3	0.2	0.3	48.2
Females.										
Single	34.6	93.8	65.3	38.5	22.4	14.2	7.8	6.5	6.5	26.1
Married	49.7	5.9	33.1	57.5	70.1	70.9	62.7	47.1	26.1	28.5
Widowed	14.6	0.1	1.0	2.9	6.2	13.4	28.5	45.8	66.9	12.9
Divorced	0.8	0.1	0.5	1.0	1.2	1.4	1.0	0.6	0.3	0.8
Unknown	0.3	0.1	0.1	0.1	0.1	0.1	*	*	0.2	31.7
LOS ANGELES.										
Males.										
Single	38.4	99.2	83.7	54.5	33.5	21.8	15.0	11.9	9.0	21.5
Married	55.8	0.6	15.5	43.8	64.1	74.0	78.0	76.7	68.0	23.0
Widowed	4.1	*	0.2	0.7	1.6	2.7	5.2	10.0	21.5	3.2
Divorced	0.7	----	0.1	0.4	0.5	0.9	1.2	1.2	1.2	0.8
Unknown	1.0	0.2	0.5	0.6	0.3	0.6	0.6	0.2	0.3	51.5
Females.										
Single	31.2	92.9	62.3	34.5	20.9	12.7	8.2	5.7	4.4	16.8
Married	53.5	6.8	35.6	60.2	70.9	74.2	67.2	55.4	32.3	35.9
Widowed	13.9	0.1	1.3	3.6	6.5	11.5	23.3	38.2	61.9	8.4
Divorced	1.0	0.1	0.6	1.5	1.5	1.5	1.3	0.6	0.6	0.4
Unknown	0.4	0.1	0.2	0.2	0.2	0.1	*	0.1	0.8	38.5
REST OF CALIFORNIA.										
Males.										
Single	49.3	99.3	88.8	64.7	46.5	35.4	28.3	25.4	21.7	25.7
Married	44.3	0.4	10.6	33.9	51.0	60.5	64.4	61.8	53.7	25.3
Widowed	5.0	*	0.1	0.7	1.6	3.0	6.1	11.2	22.9	2.9
Divorced	0.7	*	0.1	0.4	0.6	0.8	0.9	1.2	1.2	0.3
Unknown	0.7	0.3	0.4	0.3	0.3	0.3	0.3	0.4	0.5	45.8
Females.										
Single	29.8	91.6	57.5	30.2	16.9	10.0	5.5	4.1	3.5	20.8
Married	57.5	8.0	40.8	66.3	77.8	80.4	75.1	62.0	38.8	47.1
Widowed	11.6	0.1	0.9	2.4	4.0	8.2	18.0	33.0	57.0	14.0
Divorced	0.9	0.1	0.6	1.0	1.2	1.4	1.3	0.8	0.5	0.6
Unknown	0.2	0.2	0.2	0.1	0.1	*	0.1	0.1	0.2	17.5

* Less than one tenth of 1 per cent.

Table 4 shows that, as before, the maximum per cent married among males is at the age period 45 to 54, and among females at the preceding period, 35 to 44 years. The maximum per cent married among males is higher for cities of 100,000 inhabitants than for the rest of California, and is also higher for Los Angeles than for San Francisco. Among females, however, the maximum per cent married is higher outside the two leading cities than within them, but as in the case of males it is higher for the City of Angels than for the City by the Golden Gate. As for the United States and California, so for the two cities of 100,000 inhabitants and the rest of the State the per cent of widowers and widows reaches its maximum at the age period 65 years and over. The maximum per cent of widowers is higher for cities of 100,000 population than for the rest of the State, and is likewise higher for San Francisco than for Los Angeles. Similarly, the maximum per cent of widows is greater within these two cities than outside them and is also greater in San Francisco than in Los Angeles. As heretofore shown for the entire country and the Golden State, so in the two cities of 100,000 population and the rest of California the maximum per cent divorced appears later in life among men than among women.

Race, Nativity, and Parentage.—Race as well as age is important with respect to marriage. Since the population of the United States, especially California, is predominantly of the white or Caucasian race, study of the effect of race upon marriage must be extended to an analyis of the statistical data according to the nativity of the whites and the parentage of the native whites. This is done in the following table for the United States and California in 1900, both numbers and per cents being shown:

TABLE 5.—*Population at Least 15 Years of Age, classified by Sex, Race, Nativity, Nativity of Parents, and Marital Condition, with Per Cents, for United States and California: 1900.*

	Total.	Single.	Married.	Widowed.	Divorced.	Unknown.
NUMBERS.						
UNITED STATES.						
Males.						
White	22,808,628	9,173,430	12,455,858	1,020,387	72,761	86,192
Native, native parents	13,088,058	5,195,263	7,193,922	587,894	47,993	62,986
Native, foreign parents	4,463,211	2,432,374	1,906,380	106,055	11,422	6,980
Foreign-born	5,257,359	1,545,793	3,355,556	326,438	13,346	16,226
Non-Caucasian	2,811,771	1,124,510	1,499,792	157,589	11,469	18,411
Females.						
White	21,483,052	6,747,306	12,319,767	2,291,872	91,737	32,370
Native, native parents	12,561,813	3,893,417	7,251,375	1,332,334	62,585	22,102
Native, foreign parents	4,475,907	1,985,289	2,212,946	256,953	16,634	4,085
Foreign-born	4,445,332	868,600	2,855,446	702,585	12,518	6,183
Non-Caucasian	2,766,139	819,224	1,490,290	425,843	22,910	7,872
CALIFORNIA.						
Males.						
White	563,694	271,156	255,965	27,955	4,000	4,618
Native, native parents	237,666	108,884	111,099	12,287	1,977	3,419
Native, foreign parents	138,437	86,762	46,961	3,549	825	340
Foreign-born	187,591	75,510	97,905	12,119	1,198	859
Non-Caucasian	60,014	33,128	24,042	1,430	66	1,348
Females.						
White	459,612	143,897	253,251	57,208	4,162	1,094
Native, native parents	203,174	62,961	112,450	24,863	2,142	758
Native, foreign parents	135,918	61,291	64,416	8,864	1,174	173
Foreign-born	120,520	19,645	76,385	23,481	846	163
Non-Caucasian	11,902	2,857	7,026	1,840	106	73

TABLE 5.—*Population at Least 15 Years of Age, classified by Sex, Race, Nativity, Nativity of Parents, and Marital Condition, with Per Cents, for United States and California: 1900—Continued.*

	Total.	Single.	Married.	Widowed.	Divorced.	Unknown.
PER CENTS.						
UNITED STATES.						
Males.						
White	100.0	40.2	54.6	4.5	0.3	0.4
Native, native parents	100.0	39.7	54.9	4.5	0.4	0.5
Native, foreign parents	100.0	54.5	42.7	2.4	0.2	0.2
Foreign-born	100.0	29.4	63.8	6.2	0.3	0.3
Non-Caucasian	100.0	40.0	53.3	5.6	0.4	0.7
Females.						
White	100.0	31.4	57.3	10.7	0.4	0.2
Native, native parents	100.0	31.0	57.7	10.6	0.5	0.2
Native, foreign parents	100.0	44.4	49.4	5.7	0.4	0.1
Foreign-born	100.0	19.6	64.2	15.8	0.3	0.1
Non-Caucasian	100.0	29.6	53.9	15.4	0.8	0.3
CALIFORNIA.						
Males.						
White	100.0	48.1	45.4	5.0	0.7	0.8
Native, native parents	100.0	45.8	46.8	5.2	0.8	1.4
Native, foreign parents	100.0	62.7	33.9	2.6	0.6	0.2
Foreign-born	100.0	40.2	52.2	6.5	0.6	0.5
Non-Caucasian	100.0	55.2	40.1	2.4	0.1	2.2
Females.						
White	100.0	31.3	55.1	12.5	0.9	0.2
Native, native parents	100.0	31.0	55.3	12.2	1.1	0.4
Native, foreign parents	100.0	45.1	47.4	6.5	0.9	0.1
Foreign-born	100.0	16.3	63.4	19.5	0.7	0.1
Non-Caucasian	100.0	24.0	59.0	15.5	0.9	0.6

Table 5 shows that among males as well as females and in both the United States and California the per cent married is highest for foreign-born whites. In all cases, however, the per cent married is higher for native whites having both parents native than for those with one or both parents foreign-born. In short, the proportion married is considerably higher for foreign-born than for native whites, but is nevertheless lower for descendants of foreigners than for persons of purely native stock. The per cent of widowers and widows is highest for foreign-born whites, and is higher for native whites of native parentage than for those of foreign parentage. The per cent divorced, however, both among males and females, is highest for native whites having native parents and is about the same for native whites with foreign-born parents as for foreign-born whites themselves.

Since the non-Caucasian population of the United States consists almost wholly of negroes, while that of California includes mainly Chinese and Japanese, no important conclusions can be drawn from differences in the per cents married, widowed, etc., among non-Caucasians in the United States and California.

Similar figures for San Francisco and Los Angeles, as compared with the rest of California, are shown in Table 6.

TABLE 6.—*Population at Least 15 Years of Age classified by Sex, Race, Nativity, Nativity of Parents, and Marital Condition, with Per Cents, for Cities of 100,000 Inhabitants and Rest of California: 1900.*

	Total	Single	Married	Widowed	Divo'cd	Unk'wn	PER CENT.				
							Single	Married	Widowed	Divo'cd	Unk'wn
CITIES OF 100,000.											
Males.											
White	167,445	79,869	76,714	7,424	996	2,442	47.7	45.8	4.4	0.6	1.5
Native, nat. parents	49,927	22,725	22,673	2,120	381	2,028	45.5	45 4	4.2	0.8	4.1
Native, for'n parents	50,424	31,851	17,168	1,042	265	98	63.2	34.0	2.1	0.5	0.2
Foreign-born	67,094	25,293	36,873	4,262	350	316	37.7	55.0	6.3	0 5	0.5
Non-Caucasian	16,117	7,271	8,172	215	21	438	45.1	50.7	1.4	0.1	2.7
Females.											
White	154,156	[illegible]2,180	77,859	22,209	1,386	522	33.9	50.5	14.4	0.9	0.3
Native, nat. parents	46,705	15,735	23,102	6,921	573	374	33.7	49.5	14.8	1.2	0.8
Native, for'n parents	55,385	26,457	24,454	3,955	458	61	47.8	44.2	7.1	0.8	0.1
Foreign-born	52,066	9,988	30,303	11,333	355	87	19.2	58.2	21.7	0.7	0.2
Non-Caucasian	3,280	915	1,880	448	31	6	27.9	57.3	13.7	0.9	0.2
SAN FRANCISCO.											
Males.											
White	132,474	66,476	57,164	5,936	738	2,160	50.2	43.2	4.5	0.5	1.6
Native, nat. parents	31,194	15,494	12,312	1,323	246	1,789	49.7	39.5	4.3	0.8	5.7
Native, for'n parents	43,238	28,324	13,768	848	212	86	65.5	31.8	2 0	0.5	0.2
Foreign-born	58,042	22,658	31,054	3,765	280	285	39.0	53.5	6.5	0.5	0.5
Non-Caucasian	13,311	6,145	6,656	164	10	336	46.2	50.0	1.2	0.1	2.5
Females.											
White	116,172	40,286	57,555	16,975	994	362	34.7	49.5	14.6	0.9	0.3
Native, nat. parents	25,865	9,156	12,225	3,890	352	242	35.4	47.3	15.0	1.4	0.9
Native, for'n parents	46,437	22.891	19,943	3,191	361	51	49.3	42.9	6.9	0.8	0.1
Foreign-born	43,870	8,239	25,387	9,894	281	69	18.8	57.9	22.5	0.6	0.2
Non-Caucasian	2,381	698	1,377	286	17	3	29.3	57.9	12.0	0.7	0.1
LOS ANGELES,											
Males.											
White	34,971	13,393	19,550	1,488	258	282	38.3	55.9	4.3	0.7	0.8
Native, nat parents	18,783	7,231	10,331	797	135	289	38.6	55 1	4.3	0 7	1.3
Native, for'n parents	7,186	3,527	3,400	194	53	12	49.1	47.3	2.7	0.7	0.2
Foreign-born	9,052	2,635	5,819	497	70	31	29.1	64.3	5.5	0.8	0.3
Non-Caucasian	2,806	1,126	1,516	51	11	102	40.2	54.0	1.8	0.4	3.6
Females.											
White	37,984	11,894	20,304	5,234	392	160	31.3	53.5	13.8	1.0	0.4
Native, nat. parents	20,840	6,579	10,877	3,081	221	182	31 6	52 2	14.5	1 1	0.6
Native, for'n parents	8,948	3,566	4,511	764	97	10	39.9	50 4	8 5	1.1	0.1
Foreign-born	8,196	1,749	4,916	1,439	74	18	21.3	60.0	17.6	0.9	0.2
Non-Caucasian	899	217	503	162	14	3	24.1	56.0	18.0	1.6	0.3
REST OF CALIFORNIA.											
Males.											
White	396,249	191,287	179,251	20,531	3,004	2,176	48.3	45.2	5.2	0.8	0.5
Native, nat. parents	187,739	86,159	88,426	10,167	1,596	1,391	45.9	47.1	5.4	0.9	0.7
Native, for'n parents	88,013	54,911	29,793	2,507	560	242	62.4	33 9	2.8	0 6	0 3
Foreign-born	120,497	50,217	61,032	7,857	848	543	41.7	50.7	6.5	0.7	0.4
Non-Caucasian	43,897	25,857	15,870	1,215	45	910	58.9	36.1	2.8	0.1	2.1
Females.											
White	305,456	91,717	175,392	34,999	2,776	572	30.0	57.4	11 5	0.9	0.2
Native, nat. parents	156,469	47,226	89,348	17,942	1,569	384	30 2	57.1	11.5	1 0	0.2
Native, for'n parents	80,533	34,834	39,962	4,909	716	112	43.3	49.6	6.1	0.9	0.1
Foreign-born	68,454	9 657	46,082	12,148	491	76	14.1	67.3	17.8	0.7	0.1
Non-Caucasian	8,622	1,942	5,146	1,392	75	67	22.5	59.7	16.1	0.9	0.8

It appears from Table 6 that, as heretofore noted for California, the per cents married and widowed among males, as well as females, are highest for foreign-born whites, and are higher for native whites of native parentage than for those of foreign parentage in both cities of 100,000 population and in the rest of the State. Generally speaking, the per cent divorced, among both males and females, is highest for native whites of native parentage, and is about the same for native whites of foreign parentage as for foreign-born whites both within and outside the two cities of 100,000 population, the principal exception being that among males in Los Angeles the per cent divorced is slightly higher for foreign-born whites than for native whites of either native or foreign parentage.

Race and Age.—Table 7 has been prepared to facilitate analysis of the marital condition of males and females classified by race, nativity, and parentage at successive age periods. For convenience, as before, only the per cent distribution is shown, and the data presented are also limited to the State of California in 1900. Corresponding figures for continental United States may be found in the Abstract of the Twelfth Census, 1900, Tables 24 and 25, pages 20–23.

TABLE 7.—*Per Cent Distribution, by Marital Condition, of Population at Least 15 Years of Age, classified by Sex, Race, Nativity, Nativity of Parents, and Age Periods, for California: 1900.*

	PER CENT DISTRIBUTION BY MARITAL CONDITION.									
	15 Years and Over.	15 to 19 Years.	20 to 24 Years.	25 to 29 Years.	30 to 34 Years.	35 to 44 Years.	45 to 54 Years.	55 to 64 Years.	65 Years and Over.	Age Unknown.
MALES.										
White.										
Single	48.1	99.5	88.7	64.1	44.9	32.2	23.9	21.7	19.8	33.8
Married	45.4	0.3	10.6	34.4	52.6	63.5	68.2	64.6	35.1	16.6
Widowed	5.0	*	0.1	0.7	1.5	3.1	6.5	12.2	23.6	1.6
Divorced	0.7	*	0.1	0.4	0.6	0.9	1.2	1.3	1.1	0.2
Unknown	0.8	0.2	0.5	0.4	0.4	0.3	0.2	0.2	0.4	47.8
Native white, native par'nts										
Single	45.8	99.4	86.5	58.8	40.1	27.8	19.3	17.6	16.8	24.3
Married	46.8	0.4	12.3	39.2	56.8	67.1	72.2	68.8	58.6	12.4
Widowed	5.2	*	0.2	0.8	1.8	3.6	6.8	11.8	22.9	0.9
Divorced	0.8	*	0.1	0.5	0.7	1.2	1.5	1.5	1.3	0.3
Unknown	1.4	0.2	0.9	0.7	0.6	0.3	0.2	0.3	0.4	62.1
Native white, for'gn par'nts										
Single	62.7	99.6	90.9	67.5	47.6	34.4	26.8	24.6	22.0	42.2
Married	33.9	0.2	8.6	31.2	49.9	61.1	64.9	59.8	52.4	29.1
Widowed	2.6	*	0.1	0.7	1.5	3.2	6.8	13.8	23.9	0.9
Divorced	0.6	....	0.1	0.4	0.8	1.1	1.3	1.6	1.4	0.4
Unknown	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.8	27.4
Foreign-born white.										
Single	40.2	99.2	89.4	68.3	48.1	35.3	26.9	24.6	22.8	53.5
Married	52.2	0.6	10.2	30.8	50.0	61.3	65.7	61.9	51.5	24.2
Widowed	6.5	*	0.1	0.5	1.3	2.6	6.2	12.2	24.3	3.2
Divorced	0.6	....	*	0.1	0.3	0.6	0.9	1.0	0.9	0.1
Unknown	0.5	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.5	19.0
Non-Caucasian.										
Single	55.2	97.5	84.8	68.5	54.8	49.9	45.1	41.6	34.2	21.5
Married	40.1	1.9	13.6	29.7	42.8	47.2	51.4	51.9	47.2	29.9
Widowed	2.4	*	0.2	0.8	1.0	1.7	2.4	5.3	17.5	3.1
Divorced	0.1	....	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1
Unknown	2.2	0.6	1.3	0.9	1.2	1.1	1.0	1.1	0.9	45.4

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* Less than one tenth of 1 per cent.

TABLE 7.—*Per Cent Distribution, by Marital Condition, of Population at Least 15 Years of Age, classified by Sex, Race, Nativity, Nativity of Parents, and Age Periods, for California: 1900—Continued.*

	PER CENT DISTRIBUTION BY MARITAL CONDITION.									
	15 Years and Over.	15 to 19 Years.	20 to 24 Years.	25 to 29 Years.	30 to 34 Years.	35 to 44 Years.	45 to 54 Years.	55 to 64 Years.	65 Years and Over.	Age Unknown
FEMALES.										
White.										
Single	31.3	92.6	60.5	33.2	18.8	11.3	6.3	4.8	4.2	22.2
Married	55.1	7.1	37.9	63.1	75.1	77.5	71.5	58.1	35.7	36.4
Widowed	12.5	0.1	0.9	2.5	4.7	9.7	20.9	36.3	59.4	12.4
Divorced	0.9	0.1	0.6	1.1	1.3	1.4	1.2	0.7	0.5	0.4
Unknown	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	28.6
Native white, native par'nts										
Single	31.0	92.1	57.0	30.1	17.4	10.8	5.8	4.1	3.3	20.9
Married	55.3	7.6	41.1	65.7	76.0	78.0	73.2	61.2	37.4	34.0
Widowed	12.2	0.1	1.0	2.8	4.9	9.4	19.4	33.8	58.5	7.2
Divorced	1.1	0.1	0.7	1.3	1.6	1.7	1.5	0.8	0.6	0.6
Unknown	0.4	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	37.3
Native white, for'gn par'nts										
Single	45.1	94.2	66.1	39.4	23.7	14.2	7.4	5.2	4.5	45.7
Married	47.4	5.5	32.6	57.0	70.0	73.9	70.3	56.0	34.0	32.8
Widowed	6.5	*	0.7	2.4	5.0	10.3	21.1	38.0	60.9	7.5
Divorced	0.9	0.1	0.5	1.1	1.2	1.6	1.2	0.8	0.2	...
Unknown	0.1	0.2	0.1	0.1	0.1	*	....	*	0.4	14.0
Foreign-born white.										
Single	16.3	87.0	54.2	27.0	14.7	9.5	6.4	5.3	5.1	17.9
Married	63.4	12.6	44.3	70.1	80.3	80.1	70.2	55.6	34.0	43.2
Widowed	19.5	0.2	0.9	2.1	4.2	9.6	22.4	38.4	60.3	26.6
Divorced	0.7	*	0.5	0.7	0.7	0.8	1.0	0.6	0.4	0.2
Unknown	0.1	0.2	0.1	0.1	0.1	*	*	0.1	0.2	12.1
Non-Caucasian.										
Single	24.0	77.8	42.3	24.0	13.6	7.2	5.6	5.7	4.2	21.5
Married	59.0	21.3	53.0	68.0	77.0	77.6	67.7	53.8	35.2	55.8
Widowed	15.5	0.7	3.3	6.7	8.1	13.8	25.3	39.3	58.9	15.9
Divorced	0.9	0.1	0.8	0.9	1.1	1.1	1.0	0.8	1.0	1.6
Unknown	0.6	0.1	0.6	0.4	0.2	0.3	0.4	0.4	0.7	5.2

* Less than one tenth of 1 per cent.

Table 7 shows that in California the maximum per cent married among males is at the age period 45 to 54 years for native whites of native and foreign parentage as well as for foreign-born whites. Among females, however, the maximum per cent married is at the preceding age period, 35 to 44, for native whites of native and foreign parentage, and even earlier, 30 to 34 years, for foreign-born whites. In all cases the maximum per cent of widowers and widows is at the highest age period distinguished, 65 years and over, the maximum per cents being not far from the same for each element of the population. In every instance, also, the maximum per cent divorced is found at a higher age period among men than among women.

STATISTICS OF DEATHS: 1905-1906.

Summary.—In the first year covered by the new law requiring the proper registration of deaths prior to the issuance of burial permits, returns from all fifty-seven counties of California give a total of 27,026 deaths, exclusive of stillbirths, 12,385 being for the last half of 1905 and 14,641 for the first half of 1906.

For an estimated State population of 1,784,521 in 1905, the 27,026 deaths in 1905–1906 give a rate of 15.1 per 1,000 population.

The death-rate is 11.5 for Northern California, 15.1 for Central California, and 17.6 for Southern California.

The death-rates are only 12.0 and 11.1, respectively, for the coast and interior counties of Northern California, but the returns were not particularly complete for some counties in this part of the State.

The death-rate is highest, 17.9, for Los Angeles, and next, 17.1, for the other six counties of Southern California, being swollen in each case by the many deaths of recent residents, especially from tuberculosis.

The death-rate is also above the State average for the coast counties of Central California, 16.4, and for San Francisco, 15.6, where fatalities in the April earthquake and fire increased the mortality appreciably.

The rate is below the State average, 15.1, not only for the coast and interior counties of Northern California, but also for the bay counties other than San Francisco (14.5), and for the interior counties from Yolo, Sacramento, and El Dorado to and including Kern (14.4).

The rate is 15.2 for the metropolitan area, against 13.6 for the rural counties north of Tehachapi.

The principal cause of death in California is tuberculosis, which caused 15.5 per cent of the total deaths. The death-rate for tuberculosis of the lungs and other organs is 234.4 per 100,000 population.

Next to tuberculosis come diseases of the circulatory, respiratory, and nervous systems, which caused respectively 12.6, 10.8, and 9.8 per cent of the total deaths. Or, from another point of view, the death-rate per 100,000 population, is 191.3 for diseases of the circulatory system, heart disease, etc., 163.6 for pneumonia and other diseases of the respiratory system, and 147.8 for meningitis and other diseases of the nervous system.

The proportions are next highest for diseases of the digestive system (diarrhea and enteritis, etc.), violence other than suicide or public calamity, cancer, Bright's disease, and early infancy.

The most fatal epidemic disease was typhoid fever, causing 425 deaths, or 1.6 per cent of the State total. Next were diphtheria and croup, influenza, whooping-cough, measles, malarial fever, scarlet fever, and smallpox.

There are 709 deaths known to have resulted directly or indirectly from earthquake and fire, distributed as follows: San Francisco, 463; Santa Clara, 141; Sonoma, 72; Alameda, 12, and other counties, 21.

The deaths in Santa Clara county were mainly at Agnews State Hospital, and in Sonoma county mainly in Santa Rosa city. Most of the deaths in Alameda and other counties occurred among refugees from San Francisco suffering from fright or exposure.

Analysis of causes of death in different localities reveals marked contrasts between the several geographic divisions in the relative prevalence of various diseases.

In the coast counties of both Northern and Central California, as well as in the six counties of Southern California other than Los Angeles, relatively high proportions of all deaths are due to diseases of the nervous system, the explanation being the presence of State hospitals in these three geographic divisions.

The interior counties of both Northern and Central California have high proportions of total deaths due to malarial fever, typhoid fever, and other epidemic diseases. The present low death-rates for these geographic divisions could be further reduced by stricter enforcement of the health laws.

In San Francisco, and to a less extent in the other bay counties, the proportion is very high for diseases of the circulatory system, heart disease and kindred complaints.

In Los Angeles, as well as the other counties of Southern California, the proportions are very high for tuberculosis, on account of the many deaths occurring among newcomers from the East.

Tuberculosis caused 4,183 deaths, or 15.5 per cent of the State total. The per cent ranges from 22.2 for Los Angeles, and 20.8 for the other counties south of Tehachapi, to 11.9 for the bay counties other than San Francisco, and only 10.6 for the interior counties of Northern California.

However, deaths from tuberculosis in Southern California occur largely among newly arrived consumptives. Thus, 27.8 per cent of the tuberculosis victims in Southern California had lived in the State less than a year, and altogether 58.2 per cent had lived here less than ten years, the corresponding per cents for the entire State being 13.3 and 33.2, and for Northern and Central California together being 4.6 and 18.2 respectively. In fact, of all who died of tuberculosis in Southern California, 3.5 per cent had been in the State less than a month, altogether 10.8 per cent less than three months, and altogether 18.4 per cent less than six months.

In Northern and Central California, on the other hand, considerable numbers of native Californians and old-time residents fall victims to the "great white plague." The per cent of native Californians among tuberculosis victims is 37.3 for Northern California, and 36.9 for Central California, as compared with only 14.1 for Southern California, and 28.4 for the State as a whole. Similarly, the per cent who had lived here at least ten years is 33.7 for both Northern and Central California, against 19.5 for Southern California, and 28.4 for the entire State.

Of the 27,026 deaths, 16,681, or 61.7 per cent, were male and 10,345, or 38.3 per cent, were female. The per cent male is highest for the interior counties of Northern California, and is lowest for Los Angeles.

The white decedents numbered 25,463, or 94.2 per cent of all, while the Chinese were 731, the negroes 400, the Japanese 319, and the Indians 113.

The per cent white is highest for the six counties of Southern California other than Los Angeles and is lowest for the interior counties of Central California.

The per cents Chinese and Japanese are highest for the interior counties of Central California. The per cent negro is highest for Los Angeles, and the per cent Indian is highest for the coast counties of Northern California.

Of the white decedents, 8,993, or 35.3 per cent, were born in other states than California; 8,155, or 32.0 per cent, were foreign born; 7,193, or 28.3 per cent, were born in California; and 1,122, or 4.4 per cent, were of unknown nativity.

The per cent born in California is highest for San Francisco and the other bay counties, and is lowest for Los Angeles. Conversely, the per cent born in other states is highest for Los Angeles and the other counties south of Tehachapi, but is lowest for San Francisco. The per cent foreign born, however, is highest for the metropolis and lowest for Southern California outside Los Angeles.

The deaths by age periods were as follows: 15 to 64 years, or the "productive ages," 14,213 or 52.6 per cent; 65 years and over, or old age, 7,324 or 27.1 per cent; under 1 year, or early infancy, 2,953 or 10.9 per cent; 1 to 4 years, or childhood, 1,212 or 4.5 per cent; 5 to 14 years, or youth, 891 or 3.3 per cent; and age unknown, 433 or 1.6 per cent.

The per cent of deaths in early infancy is highest for the bay counties other than San Francisco and next for the metropolis itself.

The per cent of deaths in childhood is highest for the six counties of Southern California other than Los Angeles.

The per cent of deaths in youth is highest for Los Angeles and for both the coast and interior counties of Northern California.

The per cent of deaths at the productive ages is highest for Los Angeles and next for San Francisco.

The per cent of deaths at old age is highest for the interior and coast counties of Northern California.

Geographic Divisions.—For convenience in tabulation the fifty-seven counties of California have been grouped in three main and eight minor geographic divisions. The three main divisions are Northern, Central, and Southern California. The line between Northern and Central California has been drawn at the southern boundary of Placer, Sutter, Colusa, Napa, and Sonoma counties, or the northern boundary of El Dorado, Sacramento, Yolo, and Marin counties. This dividing line extends irregularly from Lake Tahoe to the Pacific Ocean somewhat north of San Francisco Bay. The line between Central and Southern California has been drawn at the southern boundary of Inyo, Kern, and San Luis Obispo counties, or the northern boundary of San Bernardino, Los Angeles, Ventura, and Santa Barbara counties. This line is familiarly located by Tehachapi pass.

In both Northern and Central California, divisions have been made between the coast and the interior counties. In each case the coast counties include some counties not actually contiguous to the Pacific Ocean but yet on the westward side of the Coast Ranges. Moreover, in Central California, San Francisco, and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo) have been made minor geographic divisions. Similarly, in Southern California, Los Angeles has been made a minor geographic division in contrast with the other six counties south of Tehachapi.

The three main and eight minor geographic divisions are as follows, the counties in each group being arranged alphabetically for the sake of ready reference:

Main and Minor Geographic Divisions of California, with Counties included in each.

NORTHERN CALIFORNIA.

Coast Counties.

Del Norte
Humboldt
Lake
Mendocino
Napa
Sonoma
Trinity

Interior Counties.

Butte
Colusa
Glenn
Lassen
Modoc
Nevada
Placer
Plumas
Shasta
Sierra
Siskiyou
Sutter
Tehama
Yuba

CENTRAL CALIFORNIA.

San Francisco
(City and County)

Other Bay Counties.

Alameda
Contra Costa
Marin
San Mateo

Coast Counties.

Monterey
San Benito
San Luis Obispo
Santa Clara
Santa Cruz

Interior Counties.

Alpine
Amador
Calaveras
El Dorado
Fresno
Inyo
Kern
Kings
Madera
Mariposa
Merced
Mono
Sacramento
San Joaquin
Solano
Stanislaus
Tulare
Tuolumne
Yolo

SOUTHERN CALIFORNIA.

Los Angeles.

Other Counties.

Orange
Riverside
San Bernardino
San Diego
Santa Barbara
Ventura

Death-rates.—Under the law of 1905 requiring the proper registration of deaths prior to the issuance of burial permits, returns of varying completeness were received in the fiscal year 1905–1906 from all the fifty-seven counties in the State. In order to calculate death-rates the population of California in 1905 has been estimated conservatively according to the Census Bureau method by adding to the population in 1900 five tenths of the increase between 1890 and 1900, except that for the few counties showing decreases between the last two Federal censuses the population in 1900 has been taken for 1905, and for the three principal cities arbitrary estimates have been made because of their exceptionally rapid growth. The estimate for San Francisco in 1905 is 450,000, for Los Angeles 180,000, and for Oakland 90,000.

The following table shows the population as thus estimated in 1905, the deaths, exclusive of stillbirths, reported for 1905–1906, and the death-rate per 1,000 population, for each geographic division indicated above as well as for certain combinations of these divisions:

TABLE 1.—*Estimated Population (1905), Deaths, and Death-rate per 1,000 Population, for Geographic Divisions: 1905–1906.*

Geographic Division.	Estimated Population: 1905.	Deaths: 1905–1906.	Death-rate per 1,000 Population.
THE STATE	1,784,521	27,026	15.1
Northern California	269,510	3,093	11.5
Coast counties	121,785	1,457	12.0
Interior counties	147,725	1,636	11.1
Central California	1,105,090	16,720	15.1
San Francisco	450,000	7,010	15.6
Other bay counties	216,127	3,133	14.5
Coast counties	132,371	2,176	16.4
Interior counties	306,592	4,401	14.4
Southern California	409,921	7,213	17.6
Los Angeles	259,000	4,638	17.9
Other counties	150,921	2,575	17.1
Northern and Central California	1,374,600	19,813	14.4
Coast counties	920,283	13,776	15.0
Interior counties	454,317	6,037	13.3
Metropolitan area	666,127	10,143	15.2
Rural counties	708,473	9,670	13.6

It appears from Table 1 that for an estimated State population of 1,784,521 in 1905, the 27,026 deaths in 1905–1906 give a rate of 15.1 per 1,000 population.

Of the main geographic divisions, Northern California shows the lowest death-rate, 11.5, and Southern California the highest, 17.6, the rate for Central California being the same as for the State, 15.1.

Of the minor divisions, both the coast and interior counties of Northern California have death-rates, 12.0 and 11.1 respectively, which are considerably below the State average. In explanation of these low death-rates, however, it should be noted that the returns were not particularly complete for several counties in Northern California.

The death-rate is highest, 17.9, for Los Angeles and next, 17.1, for the other six counties of Southern California. The relatively high death-rates in this part of the State are due largely to the many deaths of recent residents, especially from tuberculosis.

The death-rate is also above the State average for the coast counties of Central California, 16.4, as well as for San Francisco, 15.6. In each of these geographic divisions, however, the death-rate was increased materially by the excessive mortality in April, 1906, resulting from a seismic disturbance.

The rate is below the State average, 15.1, not only for the coast and interior counties of Northern California, but also for the bay counties other than San Francisco (Alameda, Contra Costa, Marin and San Mateo), as well as for the interior counties of Central California, extending from Yolo, Sacramento and El Dorado on the north, to and including Kern on the south. The death-rate is 14.5 for the bay counties other than San Francisco and 14.4 for the group of interior counties just described.

For Northern and Central California together the death-rate is only 14.4, as compared with 17.9 for Southern California. The rate for the coast counties from Del Norte to San Luis Obispo inclusive is 15.0, against 13.3 for the interior counties from Siskiyou and Modoc to and including Kern. That the death-rate is higher for the coast than for the interior counties is due mainly to the relatively great mortality usual in a metropolis like San Francisco. Thus, the death-rate is 15.2 for the metropolitan area, comprising San Francisco and the other bay counties, against only 13.6 for the rural counties of Northern and Central California.

Causes of Death.—The following table gives the number of deaths in California in 1905–1906 from certain principal causes, as well as the proportion from each cause per 1,000 total deaths and also the death-rate per 100,000 estimated population (1,784,521):

TABLE 2.—*Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths and Death-rate per 100,000 Population, for California: 1905–1906.*

Cause of Death.	Deaths: 1905–1906.	Proportion per 1,000 Total Deaths.	Death-rate per 100,000 Population.
ALL CAUSES	**27,026**	**1,000.0**	**1,514.5**
Typhoid fever	425	15.7	23.8
Malarial fever	90	3.3	5.0
Smallpox	27	1.0	1.5
Measles	128	4.7	7.2
Scarlet fever	45	1.7	2.5
Whooping-cough	174	6.4	9.8
Diphtheria and croup	234	8.7	13.1
Influenza	217	8.0	12.2
Other epidemic diseases	193	7.2	10.8
Tuberculosis of lungs	3,622	134.0	203.0
Tuberculosis of other organs	561	20.8	31.4
Cancer	1,428	52.8	80.0
Other general diseases	1,020	37.7	57.2
Meningitis	448	16.6	25.1
Other diseases of nervous system	2,190	81.0	122.7
Diseases of circulatory system	3,413	126.3	191.3
Pneumonia and broncho-pneumonia	2,153	79.7	120.6
Other diseases of respiratory system	767	28.4	43.0
Diarrhea and enteritis, under 2 years	700	25.9	39.2
Diarrhea and enteritis, 2 years and over	278	10.3	15.6
Other diseases of digestive system	1,427	52.8	80.0
Bright's disease and nephritis	1,407	52.1	78.8
Childbirth	262	9.7	14.7
Early infancy	851	31.5	47.7
Suicide	474	17.5	26.6
Earthquake and fire	709	26.2	39.7
Other violence	1,955	72.3	109.6
All other causes	1,828	67.7	102.4

Tuberculosis is the principal cause of death in California. Over one seventh (15.5 per cent) of all deaths were due to this disease, 13.4 per cent of all deaths being caused by tuberculosis of the lungs and 2.1 per cent by tuberculosis of other organs. The death-rate is 234.4 per 100,000 population for all forms of tuberculosis.

Next to tuberculosis come diseases of the circulatory system, heart disease, etc. These diseases caused one eighth (12.6 per cent) of all deaths and have a death-rate of 191.3 per 100,000 population.

Next come diseases of the respiratory system, which caused nearly one ninth (10.8 per cent) of all deaths in the State, pneumonia and broncho-pneumonia causing 8.0 per cent and other diseases of the respiratory system 2.8 per cent of all deaths. The death-rate for all diseases of the respiratory system is 163.6 per 100,000 population.

Following pneumonia and other diseases of the respiratory system come meningitis and other diseases of the nervous system. These diseases caused nearly one tenth (9.8 per cent) of all deaths and have a death-rate of 147.8 per 100,000 population.

The proportions are next highest for diseases of the digestive system (diarrhea and enteritis, etc.), 8.9 per cent; violence other than suicide or earthquake and fire, 7.2 per cent; cancer, 5.3 per cent; Bright's disease and nephritis, 5.2 per cent; and early infancy, 3.2 per cent.

Of the epidemic diseases, typhoid fever was by far the most fatal, causing 425 deaths, or 1.6 per cent of the State total for the year. The number of deaths from other important epidemic diseases in 1905–1906 was as follows: diphtheria and croup, 234; influenza, 217; whooping-cough, 174; measles, 128; malarial fever, 90; scarlet fever, 45; and smallpox, 27. The deaths from smallpox were only 1 in each 1,000 from all causes and represent a death-rate of no more than 1.5 per 100,000 population.

Altogether, 709 deaths, or 2.6 per cent of all for the year 1905–1906, are charged against the earthquake and fire of April, 1906. The number given includes only the deaths known to have resulted from this public calamity, and may perhaps understate the loss of life resulting from this seismic disturbance. However, the total does include several deaths resulting only indirectly from earthquake and fire, as deaths of aged persons from fright or heart disease and deaths of infants from exposure.

The 709 deaths resulting directly or indirectly from earthquake and fire occurred in the following counties: San Francisco, 463; Santa Clara, 141; Sonoma, 72; Alameda, 12; Santa Cruz, 6; San Benito and Sacramento, 3 each; Mendocino, Napa, and Solano, 2 each; and Glenn, Nevada, and Los Angeles, 1 each. The bulk of the deaths in Santa Clara county were at the State Hospital at Agnews, and nearly all in Sonoma county were in Santa Rosa city. Most of the deaths in the other counties named occurred among refugees from San Francisco suffering from fright or exposure.

Table 3 gives for the three main geographic divisions the number of deaths from certain principal causes, and also the proportion from each cause per 1,000 total deaths. The death-rates for each disease per 100,000 population are not shown for geographic divisions, because the registration of deaths was not equally complete throughout the State.

TABLE 3.—*Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Main Geographic Divisions: 1905–1906.*

Cause of Death.	The State.	Division.		
		Northern.	Central.	Southern.
DEATHS: 1905–1906.				
ALL CAUSES	27,026	3,093	16,720	7,213
Typhoid fever	425	55	278	92
Malarial fever	90	39	41	10
Smallpox	27	4	22	1
Measles	128	7	69	52
Scarlet fever	45	5	29	11
Whooping-cough	174	34	87	53
Diphtheria and croup	234	31	132	71
Influenza	217	50	102	65
Other epidemic diseases	193	40	107	46
Tuberculosis of lungs	3,622	309	1,893	1,420
Tuberculosis of other organs	561	56	358	147
Cancer	1,428	136	903	389
Other general diseases	1,020	121	638	261
Meningitis	448	46	284	118
Other diseases of nervous system	2,190	347	1,265	578
Diseases of circulatory system	3,413	344	2,282	787
Pneumonia and broncho-pneumonia	2,153	250	1,405	498
Other diseases of respiratory system	767	92	479	196
Diarrhea and enteritis, under 2 years	700	47	487	166
Diarrhea and enteritis, 2 years and over	278	24	185	69
Other diseases of digestive system	1,427	173	897	357
Bright's disease and nephritis	1,407	115	864	428
Childbirth	262	27	166	69
Early infancy	851	62	553	236
Suicide	474	49	317	108
Earthquake and fire	709	78	630	1
Other violence	1,955	255	1,140	560
All other causes	1,828	297	1,107	424
PROPORTION PER 1,000 TOTAL DEATHS.				
ALL CAUSES	1,000.0	1,000.0	1,000.0	1,000.0
Typhoid fever	15.7	17.8	16.6	12.8
Malarial fever	3.3	12.6	2.5	1.4
Smallpox	1.0	1.3	1.3	0.1
Measles	4.7	2.3	4.1	7.2
Scarlet fever	1.7	1.6	1.7	1.5
Whooping-cough	6.4	11.0	5.2	7.4
Diphtheria and croup	8.7	10.0	7.9	9.8
Influenza	8.0	16.2	6.1	9.0
Other epidemic diseases	7.2	12.9	6.4	6.4
Tuberculosis of lungs	134.0	99.9	113.2	196.9
Tuberculosis of other organs	20.8	18.1	21.4	20.4
Cancer	52.8	44.0	54.0	53.9
Other general diseases	37.7	39.1	38.2	36.2
Meningitis	16.6	14.9	17.0	16.4
Other diseases of nervous system	81.0	112.2	75.7	80.1
Diseases of circulatory system	126.3	111.2	136.5	109.1
Pneumonia and broncho-pneumonia	79.7	80.8	84.0	69.0
Other diseases of respiratory system	28.4	29.8	28.6	27.2
Diarrhea and enteritis, under 2 years	25.9	15.2	29.1	23.0
Diarrhea and enteritis, 2 years and over	10.3	7.8	11.1	9.6
Other diseases of digestive system	52.8	55.9	53.6	49.5
Bright's disease and nephritis	52.1	37.2	51.7	59.3
Childbirth	9.7	8.7	9.9	9.6
Early infancy	31.5	20.1	33.1	32.7
Suicide	17.5	15.8	19.0	15.0
Earthquake and fire	26.2	25.2	37.7	0.1
Other violence	72.3	82.4	68.2	77.6
All other causes	67.7	96.0	66.2	58.8

Table 3 shows that the various epidemic diseases cause rather large proportions of all deaths in Northern California, the proportion for this division being higher than the State average in the case of every epidemic disease except measles and scarlet fever. In Northern California, also, the proportion is high for diseases of the nervous system other than meningitis, being 112.2 here against a general average of only 81.0. Central California excels particularly in the proportion of all deaths caused by diseases of the circulatory system (heart disease, etc.), the proportion for such diseases per 1,000 total deaths being 136.5 for this division, against only 126.3 for the State. Southern California leads especially in the proportion of all deaths due to tuberculosis, the proportion for tuberculosis of the lungs being 196.9 per 1,000 total deaths for the seven counties south of Tehachapi, as compared with only 134.0 for the State as a whole. In Southern California, too, the proportion is high for measles, being 7.2 here against a State average of 4.7 per 1,000 total deaths.

Table 4 presents similar figures for the eight minor geographic divisions.

TABLE 4.—*Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Minor Geographic Divisions: 1905-1906.*

Cause of Death.	The State	Northern California.		Central California.				Southern California.	
		Coast Counties.	Interior Counties.	San Francisco	Other Bay Counties.	Coast Counties	Interior Counties.	Los Angeles.	Other Counties.
DEATHS: 1905-1906.									
ALL CAUSES	27,026	1,457	1,636	7,010	3,133	2,176	4,401	4,638	2,575
Typhoid fever	425	19	36	83	37	33	125	59	33
Malarial fever	90	4	35	6	2	3	30	5	5
Smallpox	27	1	3	11	5	....	6	1	....
Measles	128	5	2	38	15	4	12	39	13
Scarlet fever	45	2	3	10	7	2	10	9	2
Whooping-cough	174	14	20	30	24	19	14	34	19
Diphtheria and croup	234	12	19	49	29	18	36	48	23
Influenza	217	19	31	27	17	25	33	32	33
Other epidemic diseases	193	18	22	45	16	13	33	30	16
Tuberculosis of lungs	3,622	156	153	792	303	262	536	934	486
Tuberculosis of other organs	561	35	21	147	69	50	92	97	50
Cancer	1,428	69	67	380	189	118	216	278	111
Other general diseases	1,020	45	76	275	109	67	187	183	78
Meningitis	448	22	24	110	67	26	81	68	50
Other diseases of nervous system	2,190	220	127	414	245	221	385	319	259
Diseases of circulatory system	3,413	152	192	1,052	448	271	511	542	245
Pneumonia and broncho-pneumonia	2,153	107	143	649	281	131	344	343	155
Other diseases of respiratory system	767	42	50	213	102	61	103	136	60
Diarrhea and enteritis, under 2 years	700	21	26	215	103	57	112	99	67
Diarrhea and enteritis, 2 years and over	278	14	10	52	36	33	64	45	24
Other diseases of digestive system	1,427	72	101	379	175	99	244	256	101
Bright's disease and nephritis	1,407	53	62	388	201	110	165	281	147
Childbirth	262	9	18	50	34	34	48	44	25
Early infancy	851	22	40	244	120	43	146	175	61
Suicide	474	26	23	160	59	39	59	76	32
Earthquake and fire	709	76	2	463	12	150	5	1	....
Other violence	1,955	94	161	372	217	136	415	284	276
All other causes	1,828	128	169	356	211	151	389	220	204

TABLE 4.—*Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Minor Geographic Divisions: 1905-1906—Continued.*

Cause of Death.	The State	Northern California.		Central California.				Southern California.	
		Coast Counties.	Interior Counties.	San Francisco	Other Bay Counties.	Coast Counties	Interior Counties.	Los Angeles	Other Counties
PROPORTION PER 1,000 TOTAL DEATHS.									
ALL CAUSES	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
Typhoid fever	15.7	18.0	22.0	11.8	11.8	15.2	28.4	12.7	12.8
Malarial fever	3.3	2.8	21.4	0.9	0.6	1.4	6.8	1.1	2.0
Smallpox	1.0	0.7	1.8	1.6	1.6	....	1.4	0.2	....
Measles	4.7	3.4	1.2	5.4	4.8	1.8	2.7	8.4	5.1
Scarlet fever	1.7	1.4	1.8	1.4	2.2	0.9	2.3	1.9	0.8
Whooping-cough	6.4	9.6	12.2	4.3	7.7	8.7	8.2	7.3	7.4
Diphtheria and croup	8.7	8.2	11.6	7.0	9.3	8.3	8.2	10.4	8.9
Influenza	8.0	13.0	19.0	8.8	5.4	11.5	7.5	6.9	12.8
Other epidemic diseases	7.2	12.4	13.4	6.4	5.1	6.0	7.5	6.5	6.2
Tuberculosis of lungs	134.0	107.1	93.5	113.0	96.7	120.4	121.8	201.4	188.7
Tuberculosis of other organs	20.8	24.0	12.8	21.0	22.0	23.0	20.9	20.9	19.4
Cancer	52.8	47.4	41.0	54.2	60.3	54.2	49.1	59.9	43.1
Other general diseases	37.7	30.9	46.5	39.2	34.8	30.8	42.5	39.5	30.8
Meningitis	16.6	15.1	14.7	15.7	21.4	11.9	18.4	14.7	19.4
Other diseases of nervous system	81.0	151.0	77.6	59.1	78.2	101.6	87.5	68.8	100.6
Diseases of circulatory system	126.3	104.3	117.4	150.1	143.0	124.5	116.1	116.9	95.2
Pneumonia and broncho-pneumonia	79.7	73.4	87.4	92.6	89.7	60.2	78.2	74.0	60.2
Other diseases of respiratory system	28.4	28.8	30.6	30.4	32.6	28.0	23.4	29.3	23.8
Diarrhea and enteritis, under 2 years	25.9	14.4	15.9	30.7	32.9	26.2	25.5	21.3	26.0
Diarrhea and enteritis, 2 years and over	10.3	9.6	6.1	7.4	11.5	15.2	14.6	9.7	9.8
Other diseases of digestive system	52.8	49.4	61.7	54.1	55.9	45.5	55.4	55.2	39.2
Bright's disease and nephritis	52.1	36.4	37.9	55.3	64.2	50.6	37.5	60.6	57.1
Childbirth	9.7	6.2	11.0	7.1	10.8	15.6	10.9	9.5	9.7
Early infancy	31.5	15.1	24.5	34.8	38.3	19.8	33.2	37.7	23.7
Suicide	17.5	17.8	14.1	22.8	18.8	17.9	13.2	16.4	12.4
Earthquake and fire	26.2	52.2	1.2	66.0	3.8	68.9	1.1	0.2	....
Other violence	72.3	64.5	98.4	53.1	69.3	62.5	94.3	61.2	107.2
All other causes	67.7	87.9	103.3	50.8	67.3	69.4	88.4	47.4	79.2

It appears from Table 4 that the coast counties of Northern California have a very high proportion of deaths due to diseases of the nervous system other than meningitis. This is accounted for by the fact that many of the deaths reported for this geographic division occurred at the Mendocino and Napa State Hospitals.

The interior counties of Northern California have high proportions for various epidemic diseases. Thus, the proportion for this division as compared with the average for the State is 21.4 against 3.3 for malarial fever, 19.0 against 8.0 for influenza, 12.2 against 6.4 for whooping-cough, 22.0 against 15.7 for typhoid fever, and 11.6 against 8.7 for diphtheria and croup.

In San Francisco the proportion is particularly high for diseases of the circulatory system, being 150.1 here against 126.3 for the State. The proportions for San Francisco are also considerably above the State averages for pneumonia and broncho-pneumonia, 92.6 against 79.7; for diarrhea and enteritis among children under 2 years of age, 30.7 against 25.9; and for suicide, 22.8 for the metropolis, against 17.5 for the State.

In the other bay counties, as in the metropolis itself, the proportion of all deaths caused by diseases of the circulatory system is very high, being 143.0 for this group of suburban counties, against only 126.3 for the State as a whole.

The coast counties of Central California, like the coast counties of Northern California, have a high proportion for diseases of the nervous system other than meningitis (101.6 against 81.0), and the explanation is that the returns for this division include numerous deaths at the Agnews State Hospital.

The interior counties of Central California, like the interior counties of Northern California, have high proportions for certain epidemic diseases. The proportion of all deaths caused by malarial fever is 6.8 for this division, against 3.3 for the State, and the proportion due to typhoid fever is 28.4 for the division, against 15.7 for the State.

Los Angeles has a very high proportion of deaths due to tuberculosis of the lungs. The proportion for Los Angeles is no less than 201.4, as compared with only 134.0 for the State. Los Angeles also has a high proportion for measles and for diphtheria and croup, the proportions being 8.4 and 10.4 for the county, against 4.7 and 8.7, respectively, for the entire State.

The other six counties south of Tehachapi likewise have a high proportion for tuberculosis of the lungs, 188.7 against 134.0, as well as for diseases of the nervous system other than meningitis, 100.6 against 81.0. As for the coast counties of Northern and Central California, so for the counties of Southern California, the high proportion for nervous diseases is explained by the inclusion of deaths at State hospitals. The very high proportions of all deaths caused by tuberculosis both in Los Angeles and the other counties south of Tehachapi are accounted for by the great number of newcomers from Eastern states who succumb to the "great white plague" even after they reach the Land of Sunshine.

Tuberculosis.—Table 5 brings out sharply the contrasts between different parts of the State in the mortality from tuberculosis.

TABLE 5.—*Number and Per Cent of Total Deaths from Tuberculosis and All Other Causes, for Geographic Divisions: 1905–1906.*

Geographic Division.	Total Deaths: 1905–1906.	Tuberculosis.		All Other Causes.	
		Number.	Per Cent	Number.	Per Cent.
THE STATE	27,026	4,183	15.5	22,843	84.5
Northern California	3,093	365	11.8	2,728	88.2
Coast counties	1,457	191	13.1	1,266	86.9
Interior counties	1,636	174	10.6	1,462	89.4
Central California	16,720	2,251	13.5	14,469	86.5
San Francisco	7,010	939	13.4	6,071	86.6
Other bay counties	3,133	372	11.9	2,761	88.1
Coast counties	2,176	312	14.3	1,864	85.7
Interior counties	4,401	628	14.3	3,773	85.7
Southern California	7,213	1,567	21.7	5,646	78.3
Los Angeles	4,638	1,031	22.2	3,607	77.8
Other counties	2,575	536	20.8	2,039	79.2
Northern and Central California	19,813	2,616	13.2	17,197	86.8
Coast counties	13,776	1,814	13.2	11,962	86.8
Interior counties	6,037	802	13.3	5,235	86.7
Metropolitan area	10,143	1,311	12.9	8,832	87.1
Rural counties	9,670	1,305	13.5	8,365	86.5

It appears from this table that the 4,183 deaths from tuberculosis in California are 15.5 per cent, or over one seventh, of the total 27,026, reported in 1905–1906. The per cent of total deaths caused by tuberculosis is no less than 22.2 for Los Angeles and 20.8 for the other six counties south of Tehachapi. The per cent is below the State average. 15.5, for every geographic division north of Tehachapi. It is as low as 11.9 for the bay counties other than San Francisco, and only 10.6 for the interior counties of Northern California.

However, it must be remembered that deaths of newly arrived consumptives are much more numerous in Southern California than in the rest of the State. This appears clearly from Table 6, showing the length of residence in California of those who died of tuberculosis in 1905–1906.

TABLE 6.—*Deaths from Tuberculosis classified by Length of Residence in California, with Per Cent Distribution, for Geographic Divisions: 1905–1906.*

Geographic Division.	Total.	Length of Residence.				
		Under 1 Year.	1 to 9 Years.	10 Years and Over.	Life.	Unknown.
NUMBERS.						
THE STATE	4,183	557	831	1,188	1,187	420
Northern California	365	15	40	123	136	51
Coast counties	191	6	20	62	72	31
Interior counties	174	9	20	61	64	20
Central California	2,251	106	315	759	830	241
San Francisco	939	31	108	336	342	122
Other bay counties	372	15	53	135	142	27
Coast counties	312	22	51	73	150	16
Interior counties	628	38	103	215	196	76
Southern California	1,567	436	476	306	221	128
Los Angeles	1,031	278	342	195	125	91
Other counties	536	158	134	111	96	37
Northern and Central California	2,616	121	355	882	966	292
Coast counties	1,814	74	232	606	706	196
Interior counties	802	47	123	276	260	96
Metropolitan area	1,311	46	161	471	484	149
Rural counties	1,305	75	194	411	482	143
PER CENTS.						
THE STATE	100.0	13.3	19.9	28.4	28.4	10.0
Northern California	100.0	4.1	10.9	33.7	37.3	14.0
Coast counties	100.0	3.1	10.5	32.5	37.7	16.2
Interior counties	100.0	5.2	11.5	35.0	36.8	11.5
Central California	100.0	4.7	14.0	33.7	36.9	10.7
San Francisco	100.0	3.3	11.5	35.8	36.4	13.0
Other bay counties	100.0	4.0	14.2	36.3	38.2	7.3
Coast counties	100.0	7.1	16.3	23.4	48.1	5.1
Interior counties	100.0	6.1	16.4	34.2	31.2	12.1
Southern California	100.0	27.8	30.4	19.5	14.1	8.2
Los Angeles	100.0	27.0	33.2	18.9	12.1	8.8
Other counties	100.0	29.5	25.0	20.7	17.9	6.9
Northern and Central California	100.0	4.6	13.6	33.7	36.9	11.2
Coast counties	100.0	4.1	12.8	33.4	38.9	10.8
Interior counties	100.0	5.9	15.3	34.4	32.4	12.0
Metropolitan area	100.0	3.5	12.3	35.9	36.9	11.4
Rural counties	100.0	5.7	14.9	31.5	36.9	11.0

Table 6 shows that 27.8 per cent of those who died of tuberculosis in Southern California had lived in the State less than a year, the per cent being 27.0 for Los Angeles and even 29.5 for the other six counties. The corresponding figure for Northern and Central California together is only 4.6, and that for the entire State is 13.3 per cent.

In fact, many of the tuberculosis victims in Southern California had been in the State only a few months. This is shown clearly by the following tabular statement, giving the length of residence in months of those who died of tuberculosis in Los Angeles and the other counties of Southern California after having been in the State less than a year:

Geographic Division.	Total Under 1 Year.	Length of Residence.			
		Under 1 Month.	1 to 2 Months.	3 to 5 Months.	6 to 11 Months.
NUMBERS.					
Southern California	436	55	114	120	147
Los Angeles	278	36	66	82	94
Other counties	158	19	48	38	53
PER CENTS.					
Southern California	27.8	3.5	7.3	7.6	9.4
Los Angeles	27.0	3.5	6.4	8.0	9.1
Other counties	29.5	3.5	9.0	7.1	9.9

It appears from the preceding tabular statement that of all who died of tuberculosis in Southern California 3.5 per cent had been in the State less than a month, altogether 10.8 per cent less than three months, and altogether 18.4 per cent less than six months. In Los Angeles 17.9 per cent, and in the other counties 19.6 per cent, of the total victims of tuberculosis had lived in California less than half a year.

Referring again to Table 6, one finds that while in Southern California altogether 58.2 per cent of all tuberculosis victims had lived in the State less than 10 years, in Northern and Central California together only 18.2 per cent had lived here this length of time, the per cent for the whole State being 33.2.

Native Californians form a considerable proportion of all who succumb to tuberculosis in Northern and Central California. Thus, the per cent of native Californians among all who died of tuberculosis is 37.3 for Northern California, and 36.9 for Central California, as compared with 28.4 for the entire State, and only 14.1 for Southern California.

Similarly, deaths of old-time residents from tuberculosis are relatively more numerous north than south of Tehachapi. The per cent of tuberculosis victims who had lived here at least ten years is 33.7 for both Northern and Central California, against 19.5 for Southern California and an average of 28.4 for the whole State.

Sex.—The proportion of the sexes among decedents is given in the following table for the several geographic divisions:

TABLE 7.—*Deaths classified by Sex, with Per Cent Distribution, for Geographic Divisions: 1905–1906.*

Geographic Division.	Total.	Male.	Female.	Per Cent.	
				Male.	Female.
THE STATE	27,026	16,681	10,345	61.7	38.3
Northern California	3,093	2,059	1,034	66.6	33.4
Coast counties	1,457	942	515	64.7	35.3
Interior counties	1,636	1,117	519	68.3	31.7
Central California	16,720	10,308	6,412	61.7	38.3
San Francisco	7,010	4,364	2,646	62.3	37.7
Other bay counties	3,133	1,803	1,330	57.5	42.5
Coast counties	2,176	1,302	874	59.8	40.2
Interior counties	4,401	2,839	1,562	64.5	35.5
Southern California	7,213	4,314	2,899	59.8	40.2
Los Angeles	4,638	2,725	1,913	58.8	41.2
Other counties	2,575	1,589	986	61.7	38.3
Northern and Central California	19,813	12,367	7,446	62.4	37.6
Coast counties	13,776	8,411	5,365	61 1	38.9
Interior counties	6,037	3,956	2,081	65.5	34.5
Metropolitan area	10,143	6,167	3,976	60.8	39.2
Rural counties	9,670	6,200	3,470	64.1	35.9

Table 7 shows that of the 27,026 persons who died in California in 1905–1906, 16,681, or 61.7 per cent, were male, and 10,345, or 38.3 per cent, were female. The per cent male is highest for the interior and coast counties of Northern California, 68.3 and 64.7 respectively, followed by the interior counties of Central California, 64.5, and by San Francisco, 62.3. The per cent male is below the State average, 61.7, for the remaining geographic divisions, and is lowest of all, 58.8, for Los Angeles.

Race.—The race distribution of decedents appears in Table 8, below:

TABLE 8.—*Deaths classified by Race, with Per Cent Distribution, for Geographic Divisions: 1905–1906.*

Geographic Division.	Total.	White.	Negro.	Indian.	Chinese.	Japanese.
NUMBERS.						
THE STATE	27,026	25,463	400	113	731	319
Northern California	3,093	2,908	29	56	82	18
Coast counties	1,457	1,386	5	32	22	12
Interior counties	1,636	1,522	24	24	60	6
Central California	16,720	15,666	190	35	576	253
San Francisco	7,010	6,588	51	3	296	72
Other bay counties	3,133	3,001	60	6	43	23
Coast counties	2,176	2,079	14	6	41	36
Interior counties	4,401	3,998	65	20	196	122
Southern California	7,213	6,889	181	22	73	48
Los Angeles	4,638	4,405	149	----	49	35
Other counties	2,575	2,484	32	22	24	13
Northern and Central California	19,813	18,574	219	91	658	271
Coast counties	13,776	13,054	130	47	402	143
Interior counties	6,037	5,520	89	44	256	128
Metropolitan area	10,143	9,589	111	9	339	95
Rural counties	9,670	8,985	108	82	319	176

TABLE 8.—*Deaths classified by Race, with Per Cent Distribution, for Geographic Divisions: 1905-1906—Continued.*

Geographic Division.	Total.	White.	Negro.	Indian.	Chinese.	Japanese.
PER CENTS.						
THE STATE	100.0	94.2	1.5	0.4	2.7	1.2
Northern California	100.0	94.0	0.9	1.8	2.7	0.6
Coast counties	100.0	95.1	0.4	2.2	1.5	0.8
Interior counties	100.0	93.0	1.5	1.5	3.7	0.3
Central California	100.0	93.7	1.1	0.2	3.5	1.5
San Francisco	100.0	94.0	0.7	0.1	4.2	1.0
Other bay counties	100.0	95.8	1.9	0.2	1.4	0.7
Coast counties	100.0	95.5	0.6	0.3	1.9	1.7
Interior counties	100.0	90.9	1.5	0.4	4.4	2.8
Southern California	100.0	95.5	2.5	0.3	1.0	0.7
Los Angeles	100.0	95.0	3.2	----	1.1	0.7
Other counties	100.0	96.5	1.2	0.9	0.9	0.5
Northern and Central California	100.0	93.8	1.1	0.4	3.2	1.4
Coast counties	100.0	94.8	1.0	0.3	2.9	1.0
Interior counties	100.0	91.5	1.5	0.7	4.2	2.1
Metropolitan area	100.0	94.5	1.1	0.1	3.4	0.9
Rural counties	100.0	92.9	1.1	0.9	3.3	1.8

The table shows that of the 27,026 decedents, 25,463, or 94.2 per cent, were white; 731, or 2.7 per cent, were Chinese; 400, or 1.5 per cent, were negro; 319, or 1.2 per cent, were Japanese; and 113, or 0.4 per cent, were Indian.

The per cent white is highest, 96.5, for the six counties of Southern California other than Los Angeles, and next, 95.8, for the bay counties other than San Francisco. It is lowest, only 90.9, for the interior counties of Central California.

The per cent Chinese is highest, 4.4, for the interior counties of Central California; next, 4.2, for San Francisco; and next, 3.7, for the interior counties of Northern California. The per cent is below the State average, 2.7, for the remaining geographic divisions, and is especially low, 1.1 and 0.9 respectively, for Los Angeles and the other counties south of Tehachapi.

The per cent Japanese is highest, 2.8, for the interior counties of Central California, and is below the State average, 1.2, for every other minor geographic division.

The per cent negro is highest, 3.2, for Los Angeles, and is equal to the State average, 1.5, only for the interior counties of Northern and Central California besides.

The per cent Indian is highest, 2.2 and 1.5 respectively, for the coast and interior counties of Northern California, but is inconsiderable for both Central and Southern California.

Nativity.—Table 9 gives the nativity of the white decedents classified as born in California, born in other states, foreign born, or nativity unknown. The 1,122 of unknown nativity include 328 victims of the earthquake and fire in San Francisco and vicinity in April, 1906.

TABLE 9.—*White Decedents classified by Nativity, with Per Cent Distribution, for Geographic Divisions: 1905–1906.*

Geographic Division.	Total White Decedents.	Born in California.	Born in Other States.	For'gn Born.	Nativity Unknown.	Per Cent. Born in California.	Per Cent. Born in Other States.	Per Cent. For'gn Born.	Per Cent. Nativity Unknown.
THE STATE	25,463	7,193	8,993	8,155	1,122	28.3	35.3	32.0	4.4
Northern California	2,908	769	1,108	863	168	26.4	38.1	29.7	5.8
Coast counties	1,386	353	514	453	66	25.5	38.1	32.7	4.7
Interior counties	1,522	416	594	410	102	27.3	39.0	27.0	6.7
Central California	15,666	4,949	4,284	5,704	729	31.6	27.3	36.4	4.7
San Francisco	6,588	2,110	1,287	2,745	446	32.0	19.5	41.7	6.8
Other bay counties	3,001	955	882	1,089	75	31.8	29.4	36.3	2.5
Coast counties	2,079	649	682	694	54	31.2	32.8	33.4	2.6
Interior counties	3,998	1,235	1,433	1,176	154	30.9	35.8	29.4	3.9
Southern California	6,889	1,475	3,601	1,588	225	21.4	52.3	23.0	3.3
Los Angeles	4,405	882	2,343	1,028	152	20.0	53.2	23.3	3.5
Other counties	2,484	593	1,258	560	73	23.9	50.7	22.5	2.9
Northern and Central California	18,574	5,718	5,392	6,567	897	30.8	29.0	35.4	4.8
Coast counties	13,054	4,067	3,365	4,981	641	31.1	25.8	38.2	4.9
Interior counties	5,520	1,651	2,027	1,586	256	29.9	36.7	28.7	4.7
Metropolitan area	9,589	3,065	2,169	3,834	521	32.0	22.6	40.0	5.4
Rural counties	8,985	2,653	3,223	2,733	376	29.5	35.9	30.4	4.2

It appears from Table 9 that of the 25,463 white decedents 8,993, or 35.3 per cent, were born elsewhere in the United States than California; 8,155, or 32.0 per cent, were foreign born; 7,193, or 28.3 per cent, were natives of the Golden State; and 1,122, or 4.4 per cent, were of unknown nativity.

The per cent of native Californians among the white decedents is highest, 32.0, for San Francisco, and next, 31.8, for the other bay counties. The per cent is also above the State average, 28.3, for the coast and interior counties of Central California, being 31.2 for the former and 30.9 for the latter. The per cent California born is somewhat below the State average for both the coast and interior counties of Northern California, and is very low indeed for Southern California. In Los Angeles one fifth, 20.0 per cent, of the white decedents were natives of California.

The per cent of white decedents born in other states is highest, 53.2, for Los Angeles, and next, 50.7, for the other counties south of Tehachapi. The per cent is also above the State average, 35.3, for both the coast and interior counties of Northern California, as well as for the interior counties of Central California. In San Francisco less than one fifth, 19.5 per cent, of the white decedents were natives of other states than California.

The per cent foreign-born among white decedents is highest, 41.7, for San Francisco, and next, 36.3, for the other bay counties. The per cent is also above the State average, 32.0, for the coast counties of both Northern and Central California. The per cent foreign-born is lowest in Southern California, being only 23.3 for Los Angeles, and 22.5 for the other six counties.

Age.—Table 10 gives the classification of decedents by selected age periods representing, in a rough way, early infancy, childhood, youth, productive ages, and old age.

TABLE 10.—*Deaths classified by Age Periods, with Per Cent Distribution, for Geographic Divisions: 1905–1906.*

Geographic Division.	Totals.	Under 1 Year.	1 to 4 Years.	5 to 14 Years.	15 to 64 Years.	65 Yrs. and Over.	Age Unknown.
NUMBERS.							
THE STATE	27,026	2,953	1,212	891	14,213	7,324	433
Northern California	3,093	233	112	119	1,458	1,124	47
Coast counties	1,457	101	49	55	698	524	30
Interior counties	1,636	132	63	64	760	600	17
Central California	16,720	1,938	757	501	8,689	4,474	361
San Francisco	7,010	886	323	172	3,782	1,566	281
Other bay counties	3,133	403	155	107	1,484	972	12
Coast counties	2,176	195	81	71	1,097	692	40
Interior counties	4,401	454	198	151	2,326	1,244	28
Southern California	7,213	782	343	271	4,066	1,726	25
Los Angeles	4,638	511	204	180	2.678	1,049	16
Other counties	2,575	271	139	91	1,388	677	9
Northern and Central California	19,813	2,171	869	620	10,147	5,598	408
Coast counties	13,776	1,585	608	405	7,061	3,754	363
Interior counties	6,037	586	261	215	3,086	1,844	45
Metropolitan area	10,143	1,289	478	279	5,266	2,538	293
Rural counties	9,670	882	391	341	4,881	3,060	115
PER CENTS.							
THE STATE	100.0	10.9	4.5	3.3	52.6	27.1	1.6
Northern California	100.0	7.5	3.6	3.9	47.1	36.4	1.5
Coast counties	100.0	6.9	3.4	3.8	47.9	36.0	2.0
Interior counties	100.0	8.1	3.8	3.9	46.5	36.7	1.0
Central California	100.0	11.6	4.5	3.0	52.0	26.7	2.2
San Francisco	100.0	12.6	4.6	2.5	54.0	22.3	4.0
Other bay counties	100.0	12.9	4.9	3.4	47.4	31.0	0.4
Coast counties	100.0	9.0	3.7	3.3	50.4	31.8	1.8
Interior counties	100.0	10.3	4.5	3.4	52.9	28.3	0.6
Southern California	100.0	10.8	4.8	3.8	56.4	23.9	0.3
Los Angeles	100.0	11.0	4.4	3.9	57.7	22.6	0.4
Other counties	100.0	10.5	5.4	3.5	53.9	26.3	0.4
Northern and Central California	100.0	11.0	4.4	3.1	51.2	28.2	2.1
Coast counties	100.0	11.5	4.4	2.9	51.3	27.3	2.6
Interior counties	100.0	9.7	4.3	3.6	51.1	30.6	0.7
Metropolitan area	100.0	12.7	4.7	2.8	51.9	25.0	2.9
Rural counties	100.0	9.1	4.0	3.5	50.5	31.7	1.2

The table shows that of the 27,026 deaths in California in 1905–1906, 14,213, or 52.6 per cent, occurred at the "productive age" from 15 to 64 years; 7,324, or 27.1 per cent, at the period of old age, 65 years and over; 2,953, or 10.9 per cent, in early infancy or the first year of life; 1,212, or 4.5 per cent, in childhood, 1 to 4 years; 891, or 3.3 per cent, in youth, 5 to 14 years; and 433, or 1.6 per cent, at unknown ages.

The per cent of total deaths occurring in early infancy or the first year of life is highest, 12.9, for the bay counties other than San Francisco; next, 12.6, for the metropolis itself; and next, 11.0 for Los Angeles. The per cent of all deaths at under 1 year of age is below the State average, 10.9, for the remaining geographic divisions, and is lowest of all, only 6.9, for the coast counties of Northern California.

The per cent of deaths in childhood, 1 to 4 years, is highest, 5.4, for the six counties of Southern California other than Los Angeles, and is also above the State average, 4.5, for San Francisco and the other bay counties. The per cent is lowest, 3.4, for the coast counties of Northern California.

The per cent of deaths in youth, 5 to 14 years, is highest, 3.9, for Los Angeles, and is about the same also, 3.8 and 3.9 respectively, for the coast and interior counties of Northern California. The per cent of deaths occurring at from 5 to 14 years of age is above or equal to the State average, 3.3, for every minor geographic division except only San Francisco, where the per cent is 2.5.

The per cent of deaths occurring at from 15 to 64 years, sometimes called the "productive ages," is highest, 57.7, for Los Angeles; next, 54.0 for San Francisco; and next, 53.9 for the six counties of Southern California other than Los Angeles. The per cent is above the State average, 52.6, only for the interior counties of Central California besides. The per cent of deaths at the productive ages is lowest in Northern California, being 47.9 for the coast counties and only 46.3 for the interior counties.

The per cent of deaths occurring at the period of old age, 65 years and over, is highest in Northern California, being 36.7 for the interior counties and 36.0 for the coast counties. The per cent is much above the State average, 27.1, for the coast counties of Central California as well as for the bay counties other than San Francisco, and is also slightly above the State average for the interior counties of Central California besides. The per cent of deaths occurring at 65 years and over is lowest of all, 22.3, for San Francisco, though it is almost as low, 22.6, for Los Angeles.

TABLE 11.—*Deaths from each Specified Disease and Class of Diseases, classified by Sex, Race, Nativity, and Age Periods, for California: 1905–1906.*

No.	Cause of Death.	Total Deaths	Male	Fe-Male	White	Negro	Indian	Chinese	Japanese	White.				Under 1 Year	1 to 4 Years	5 to 14 Years	15 to 64 Years	65 Years and Over	Age Unkn'wn
										Born in California	Born in other States	Foreign born	Nativity Unkn'wn						
	ALL CAUSES	27,026	16,681	10,345	25,463	400	113	731	319	7,193	8,993	8,155	1,122	2,953	1,212	891	14,213	7,324	433
	I. GENERAL DISEASES	8,164	4,805	3,359	7,526	144	49	307	138	2,167	2,945	2,255	159	345	485	384	5,697	1,232	21
	(A.) Epidemic diseases	1,533	890	643	1,424	26	9	34	40	709	421	269	25	182	316	308	487	235	5
1	Typhoid fever	425	273	152	384	5	1	8	27	163	120	91	10	2	26	47	330	20	.....
2	Exanthematic typhus	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3	Relapsing fever	2	.....	2	1	1	.....	.....	.....	.....	.....	1	.....	.....	.....	1	1	.....	.....
4	Malarial fever	90	58	32	80	2	1	6	1	22	40	17	1	7	5	3	48	27	.....
5	Smallpox	27	21	6	27	.....	.....	.....	.....	7	6	9	5	2	2	.....	19	3	1
6	Measles	128	70	58	126	1	1	.....	.....	97	18	11	.....	31	74	12	11	.....	.....
7	Scarlet fever	45	23	22	44	1	.....	.....	.....	30	8	4	2	1	16	20	6	.....	2
8	Whooping-cough	174	78	96	160	4	5	4	1	140	20	.....	.....	81	80	12	1	.....	.....
9	(*a*) Diphtheria	187	107	80	185	1	.....	1	.....	135	44	6	.....	11	70	88	18	.....	.....
	(*b*) Croup	47	28	19	44	2	.....	1	.....	31	11	2	.....	6	22	19	.....	.....	.....
10	Influenza	217	111	106	207	3	1	3	3	27	102	75	3	9	6	2	75	124	1
11	Miliary fever	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
12	Asiatic cholera	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
13	Cholera nostras	6	3	3	5	.....	.....	1	.....	1	2	2	.....	.....	1	.....	2	3	.....
14	Dysentery	82	48	34	76	3	.....	2	1	29	21	26	.....	13	13	3	25	28	.....
15	Plague	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
16	Yellow fever	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
17	Leprosy	2	2	.....	1	.....	.....	1	.....	.....	.....	1	.....	.....	.....	.....	2	.....	.....
18	Erysipelas	85	59	26	79	3	.....	2	1	23	28	24	4	14	1	1	39	29	1
19	Other epidemic diseases	16	9	7	5	.....	.....	5	6	4	1	.....	.....	5	.....	.....	10	1	.....
	(B.) Other general diseases	6,631	3,915	2,716	6,102	118	40	273	98	1,458	2,524	1,986	134	163	169	176	5,110	997	16
*20	Septicemia	95	64	31	85	4	1	2	3	21	34	29	1	7	2	4	57	25	.....
21	Glanders and farcy	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
22	Malignant pustule and charbon	4	4	.....	4	.....	.....	.....	.....	.....	.....	4	.....	.....	.....	.....	2	2	.....
23	Rabies	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
24	Actinomycosis, trichinosis, etc.	2	2	.....	2	.....	.....	.....	.....	.....	1	1	.....	.....	.....	.....	2	.....	.....
25	Pellagra	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
†27	Tuberculosis of lungs	3,622	2,255	1,367	3,257	76	31	205	53	841	1,889	968	59	81	36	70	3,254	220	11
†26	Tuberculosis of larynx	24	20	4	24	.....	.....	.....	.....	9	12	3	.....	.....	.....	1	22	1	.....
28	Tuberculous meningitis	236	124	112	220	3	2	2	9	165	42	11	2	59	90	30	55	2	.....
29	Abdominal tuberculosis	176	88	88	152	3	3	2	16	65	48	36	3	13	17	12	119	15	.....
30	Pott's disease	29	21	8	26	.....	.....	1	2	12	6	8	.....	1	3	5	19	1	.....
*31	Tuberculous abscess	4	2	2	2	1	.....	1	.....	1	.....	1	.....	1	.....	.....	3	.....	.....
32	White swelling	14	12	2	13	1	.....	.....	.....	6	4	3	.....	.....	.....	2	11	1	.....
33	Tuberculosis of other organs	26	15	11	22	1	.....	3	.....	6	11	5	.....	2	1	2	17	4	.....
34	General tuberculosis	52	32	20	48	.....	.....	3	1	14	19	15	.....	1	2	4	44	1	.....
35	Scrofula	1	1	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....

36	Syphilis	77	52	25	61	4	1	8	3	44	8	7	2	41	3	1	28	4	......
37	Gonorrhea of the adult	4	2	2	4	......	......	......	......	1	2	1	......	......	......	......	4	......	......
38	Gonorrheal infections of children	2	1	1	2	......	......	......	......	2	......	......	......	1	1	......	......	......	......
39	Cancer of mouth	54	49	5	53	......	......	1	......	4	24	25	......	......	......	1	28	25	......
40	Cancer of stomach and liver	560	352	208	547	7	......	4	2	36	217	288	6	1	......	1	311	246	1
41	Cancer of intestines and peritoneum	103	49	54	102	1	......	......	......	10	37	52	3	......	......	......	62	41	......
42	Cancer of genital organs	286	......	286	277	6	1	1	1	84	106	86	1	......	......	......	197	89	......
43	Cancer of breast	110	......	110	110	......	......	......	......	10	53	45	2	......	......	......	81	29	......
44	Cancer of skin	60	45	15	59	......	......	1	......	1	36	22	......	......	......	......	22	38	......
*45	Cancer of other or unspecified organs	305	196	109	290	3	......	7	5	27	143	119	1	......	5	4	188	107	1
*46	Tumor (noncancerous)	13	5	8	13	......	......	......	......	1	7	5	......	......	1	......	7	5	......
47	Acute articular rheumatism	90	45	45	87	2	......	1	......	30	29	25	3	......	4	22	49	15	......
48	Chronic rheumatism and gout	103	50	53	99	......	......	3	1	7	54	36	2	......	......	3	54	46	......
49	Scurvy	1	1	......	1	......	......	......	......	......	......	1	......	......	......	......	1	......	......
50	Diabetes	199	105	94	194	4	......	1	......	24	102	66	2	......	......	11	119	69	......
51	Exophthalmic goiter	16	4	12	16	......	......	......	......	1	10	5	......	......	1	......	13	2	......
52	Addison's disease	8	6	2	8	......	......	......	......	2	3	3	......	......	......	......	7	1	......
53	Leukemia	29	20	9	27	1	......	......	1	8	10	9	......	1	1	1	23	3	......
*54	Anemia, chlorosis	63	24	39	63	......	......	......	......	16	30	14	3	3	1	1	41	16	1
†56	Alcoholism	233	199	34	232	......	1	......	......	41	70	84	37	......	......	1	203	27	2
57	Lead poisoning	5	5	......	5	......	......	......	......	1	1	3	......	......	......	......	3	2	......
58	Other professional intoxications	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
59	Other chronic poisonings	71	62	9	42	1	......	27	1	17	14	5	6	1	......	......	62	8	......
†55	Other general diseases	4	3	1	4	......	......	......	......	......	2	1	1	......	......	......	2	2	......
	II. DISEASES OF THE NERVOUS SYSTEM	2,638	1,588	1,050	2,545	34	2	35	22	612	1,016	865	52	223	150	102	1,082	1,065	16
*60	Encephalitis	15	10	5	15	......	......	......	......	6	5	3	1	4	2	......	5	3	1
61	Meningitis	448	257	191	423	3	......	7	15	301	75	40	7	130	112	65	121	18	2
62	Locomotor ataxia	59	47	12	58	......	......	......	1	5	29	24	......	......	......	1	41	17	......
63	Other diseases of spinal cord	78	55	23	75	1	1	......	1	7	36	31	1	1	2	2	39	33	1
64	Apoplexy	1,071	646	425	1,039	11	1	18	2	60	490	464	25	5	2	7	423	630	4
65	Softening of brain	93	61	32	90	2	......	1	......	7	29	53	1	......	......	......	36	57	......
*66	Paralysis	286	154	132	279	3	......	4	......	21	138	114	6	1	1	1	75	205	3
67	General paralysis of insane	112	92	20	108	4	......	......	......	13	59	34	2	......	......	......	79	32	1
68	Other forms of mental disease	123	75	48	117	4	......	2	......	17	54	42	4	......	......	......	93	27	3
74	*a* (pt). Other diseases of brain	73	37	36	66	4	......	2	1	18	21	23	4	......	4	2	45	21	1
69	Epilepsy	92	56	36	92	......	......	......	......	34	39	18	1	2	1	7	70	12	......
*70	Convulsions (nonpuerperal)	8	6	2	8	......	......	......	......	2	5	1	......	......	......	2	6	......	......
*71	Convulsions of children	96	49	47	93	1	......	......	2	87	5	1	......	74	22	......	......	......	......
72	Tetanus	37	27	10	37	......	......	......	......	22	10	5	......	5	2	13	15	2	......
73	Chorea	5	1	4	5	......	......	......	......	3	2	......	......	......	......	2	3	......	......
74	*b* (pt). Other diseases of nervous system	36	13	23	35	......	......	1	......	7	17	11	......	1	......	......	28	7	......
75	Diseases of the eye and its adnexa	1	......	1	1	......	......	......	......	1	......	......	......	......	......	......	1	......	......
76	Diseases of the ear	5	2	3	4	1	......	......	......	1	2	1	......	......	2	......	2	1	......
	III. DISEASES OF THE CIRCULATORY SYSTEM	3,413	2,129	1,284	3,263	47	7	78	18	293	1,426	1,446	98	16	8	65	1,645	1,668	11
77	Pericarditis	32	20	12	29	......	......	3	......	6	6	15	2	......	......	3	22	7	......
78	Endocarditis	126	63	63	122	2	......	1	1	27	50	43	2	1	3	15	73	33	1
79	Heart disease	2,766	1,727	1,039	2,635	40	5	70	16	224	1,127	1,200	84	9	5	44	1,339	1,361	8
80	Angina pectoris	101	62	39	99	1	1	......	......	7	60	29	3	......	......	......	50	51	......
81	Diseases of arteries	259	174	85	253	3	......	3	......	6	121	125	1	......	......	......	82	177	......
82	Embolism and thrombosis	78	46	32	77	1	......	......	......	9	41	24	3	1	......	2	48	26	1

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* Indefinite and unsatisfactory title. † Order of titles changed.

TABLE 11.—*Deaths from each Specified Disease and Class of Diseases, classified by Sex, Race, Nativity, and Age Periods, for California: 1905-1906.—Cont'd.*

No.	Cause of Death.	Total Deaths	Male	Female	White	Negro	Indian	Chinese	Japanese	White.				Under 1 Year	1 to 4 Years	5 to 14 Years	15 to 64 Years	65 Years and Over	Age Unkn'wn
										Born in Califo'nia	Born in other States	Foreign born	Nativity Unkn'wn						
	III. Diseases of Cir. System—*Continued.*																		
83	Diseases of veins	9	5	4	8	......	......	1	......	......	7	1	......	......	......	......	5	4	......
84	Diseases of lymphatics	4	3	1	3	......	1	......	......	1	1	1	......	......	......	1	3	......	......
*85	Hemorrhages (except of lungs)	38	29	9	37	......	......	......	1	13	13	8	3	5	......	......	23	9	1
86	Other diseases of circulatory system	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
	IV. Diseases of the Respiratory System.	2,920	1,791	1,129	2,781	41	8	74	16	854	865	985	77	401	210	80	1,234	985	10
*87	Diseases of nasal fossæ	1	1	......	1	......	......	......	......	1	......	......	......	......	......	......	1	......	......
88	(a) Laryngitis	18	10	8	18	......	......	......	......	12	3	3	......	2	6	4	3	3	......
	(b) Other diseases of larynx	5	3	2	4	......	......	1	......	3	1	......	......	......	1	1	2	1	......
89	Diseases of the thyroid body	3	......	3	3	......	......	......	......	......	3	......	......	......	......	......	3	......	......
90	Acute bronchitis	161	91	70	155	2	1	2	1	90	26	38	1	65	23	5	23	45	......
91	Chronic bronchitis	248	138	110	243	2	......	3	......	24	94	123	2	2	3	2	66	175	......
92	Bronchopneumonia	427	218	209	406	8	......	9	4	188	100	111	7	116	62	11	93	144	1
93	Pneumonia	1,726	1,109	617	1,633	27	6	50	10	471	524	586	52	191	103	48	885	488	8
94	Pleurisy	59	46	13	56	......	......	2	1	6	21	27	2	1	2	1	39	16	......
*95	Congestion of lungs	120	71	49	118	......	1	1	......	39	36	40	3	21	5	5	29	59	1
96	Gangrene of lungs	14	9	5	14	......	......	......	......	3	5	5	1	......	......	......	8	6	......
97	Asthma	62	36	26	60	1	......	1	......	4	26	27	3	1	2	......	29	30	......
98	Emphysema	9	6	3	9	......	......	......	......	......	5	4	......	......	......	1	6	2	......
*99	(a) Hemorrhage of lungs	43	34	9	39	1	......	3	......	7	15	12	5	1	......	......	33	9	......
	(b) Other diseases of respiratory system	24	19	5	22	......	......	2	......	6	6	9	1	1	......	2	14	7	......
	V. Diseases of the Digestive System.	2,405	1,354	1,051	2,303	29	8	39	26	1,103	609	555	36	686	207	95	973	436	8
100	Diseases of mouth	7	4	3	7	......	......	......	......	6	1	......	......	6	......	......	1	......	......
101	(a) Tonsilitis	26	13	13	25	......	......	......	1	12	10	3	......	2	6	9	6	3	......
	(b) Diseases of pharynx	8	4	4	8	......	......	......	......	5	......	3	......	3	1	......	3	1	......
102	Diseases of esophagus	3	1	2	3	......	......	......	......	1	1	1	......	1	......	......	2	......	......
103	Ulcer of stomach	53	28	25	52	1	......	......	......	7	28	17	......	......	......	......	40	13	......
104	*(a) Gastritis	133	73	60	128	3	......	2	......	25	48	53	2	8	3	3	45	74	......
	(b) Other diseases of stomach	66	45	21	63	3		......	......	29	24	10	......	20	6	3	18	19	......
*100l	Dentition†	10	7	3	10	......	......	......	......	10	......	......	......	8	2	......	......	......	......
105	Diarrhea and enteritis (under 2 years)	700	373	327	681	4	8	2	10	653	24	3	1	584	116	......	......	......	......
106	Diarrhea and enteritis (2 years and over)	278	147	131	269	2	1	6	......	79	104	79	7	......	48	18	103	105	4
107	Intestinal parasites	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
108	(a) Hernia	66	36	30	61	2	......	3	......	12	19	29	1	7	......	1	31	27	......
	(b) Obstruction of intestines	152	77	75	147	2	......	1	2	60	43	41	3	32	17	7	58	36	2
109	Other diseases of intestines	37	19	18	36	1	......	......	......	9	20	6	1	2	2	1	25	7	......
110	Acute yellow atrophy of liver	4	3	1	4	......	......	......	......	2	......	2	......	2	......	......	2	......	......
111	Hydatid tumors of liver	4	2	2	4	......	......	......	......	2	2	......	......	......	......	1	3	......	......
112	Cirrhosis of liver	321	230	91	290	2	2	14	4	87	84	162	16	......	......	......	251	69	1

113	Biliary calculi	37	17	20	34	1		2		3	18	12	1				21	16	
114	Other diseases of liver	135	79	56	127	2	1	2	8	18	55	54		3		2	88	42	
115	Diseases of spleen	4	4		3				1			3					4		
116	Peritonitis (nonpuerperal)	154	68	86	146	3	1	4		51	64	28	3	8	4	11	114	16	1
†118	Appendicitis	198	120	78	189	3		1	5	82	60	46	1		2	38	150	8	
†117	Other diseases of digestive system	9	4	5	7			2			4	3				1	8		
	VI. DISEASES OF GENITO-URINARY SYSTEM	1,740	1,040	700	1,652	34	3	43	8	221	749	645	37	20	8	26	949	731	6
119	Acute nephritis	56	33	23	54	1			1	22	19	13		10	5	6	28	7	
120	Bright's disease	1,351	831	520	1,282	24		39	6	152	576	523	31	8	8	20	749	568	8
121	Other diseases of kidneys	48	35	13	47		1			4	24	16	3	2			22	23	1
122	Calculi of urinary tract	8	5	3	8					1	4	3					5	3	
123	Diseases of bladder	107	92	15	102	1	2	2		8	56	42	1				22	84	1
124	Diseases of urethra, urinary abscess, etc.																		
125	Diseases of prostate	44	44		43			1			23	19	1				8	35	1
126	Nonvenereal diseases of (male) genital organs																		
127	Metritis	6		6	6					1	3	2					6		
128	Uterine hemorrhage (nonpuerperal)	3		3	3						2	1					2	1	
129	Uterine tumor (noncancerous)	25		25	20	5				10	8	2					22	3	
130	Other diseases of uterus	31		31	30	1				8	13	9					28	3	
131	Ovarian tumors	17		17	16	1				6	6	4					14	3	
132	(a) Diseases of tubes	41		41	38	1		1	1	14	12	11	1				40	1	
	(b) Other diseases of female genital organs	2		2	2						2						2		
133	Nonpuerperal diseases of the breast (cancer excepted)	1		1	1						1						1		
	VII. CHILDBIRTH	262		262	246	2	3	3	8	94	81	71					261		1
134	Accidents of pregnancy	90		90	85	1			4	38	30	17					90		
135	Puerperal hemorrhage	13		13	13					5	3	5					13		
136	Other accidents of labor	17		17	14	1	2			4	1	9					16		1
137	Puerperal septicemia	73		73	67			2	4	23	23	21					73		
138	Puerperal convulsions	33		33	31		1	1		14	13	4					33		
139	Puerperal phlegmasia alba dolens																		
140	Other puerperal accidents	36		36	36					10	11	15					36		
141	Puerperal diseases of the breast																		
	VIII. DISEASES OF THE SKIN	97	58	39	93	2		1	1	15	40	34	4	4	1	3	30	59	
142	Gangrene	54	30	24	53	1				4	25	21	3	2			7	45	
143	Carbuncle	4	2	2	4					1	2	1		1			2	1	
*144	Abscess	27	18	9	25	1		1		7	8	9	1	1	1	3	14	8	
145	Other diseases of the skin	12	8	4	11				1	3	5	3					7	5	
	IX. DISEASES OF THE LOCOMOTOR SYSTEM	35	23	12	32			3		11	10	11		8	4	3	17	3	
146	Diseases of bones	30	18	12	27			3		11	8	8		8	4	3	12	3	
147	Diseases of joints																		
*148	Amputation	4	4		4						1	3					4		
149	Other diseases of organs of locomotion	1	1		1						1						1		
	X. MALFORMATIONS	181	110	71	175	2		2	2	172	2	1		164	12	3	2		
150	(a) Hydrocephalus	25	16	9	25					25				15	6	3	1		
	(b) Congenital malformation of heart, cyanosis	126	79	47	121	2		2	1	119	2			121	4		1		
	(c) Other congenital malformations	30	15	15	29				1	28		1		28	2				

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* Indefinite and unsatisfactory title. † Order of titles changed.

TABLE 11.—*Deaths from each Specified Disease and Class of Diseases, classified by Sex, Race, Nativity, and Age Periods, for California: 1905-1906.—Cont'd.*

No.	Cause of Death.	Total Deaths	Male	Female	White	Negro	Indian	Chinese	Japanese	White: Born in Cali-fo'nia	White: Born in other States	White: Foreign born	White: Nativity Un-kn'wn	Under 1 Year	1 to 4 Years	5 to 14 Years	15 to 64 Years	65 Years and Over	Age Un-kn'wn
	XI. EARLY INFANCY	851	492	359	813	14	2	13	9	813				851					
151	(a) Premature birth	455	260	195	438	6	1	4	6	438				455					
	*(b) Congenital debility	345	198	147	327	7	1	9	1	327				345					
152	Other diseases of early infancy	33	22	11	32				1	32				33					
153	Lack of care	18	12	6	16	1			1	16				18					
	XII. OLD AGE	687	396	291	666	7	3	11		4	321	330	11				28	662	2
*154	Old age	687	396	291	666	7	3	11		4	321	330	11				28	662	2
	XIII. VIOLENCE	3,138	2,552	586	2,939	32	20	85	62	678	804	849	608	119	103	124	2,106	339	347
155	Suicide by poison	147	107	40	142	1		3	1	26	36	47	33			2	126	17	2
156	Suicide by asphyxia	48	42	6	48					13	16	12	7			1	44	2	1
157	Suicide by hanging or strangulation	53	44	9	38	1		11	3	3	9	19	7				46	6	1
158	Suicide by drowning	15	13	2	14				1	4	2	7	1				12	3	
159	Suicide by firearms	157	146	11	148	2			7	25	52	49	22				143	12	2
160	Suicide by cutting instruments	33	30	3	31			1	1	4	8	15	4				27	6	
161	Suicide by jumping from high places	3	2	1	3							2	1				3		
162	Suicide by crushing	4	3	1	4					1			3				4		
163	Other suicides	14	10	4	12			1	1	1	4	5	2				12	2	
164	Fractures	145	108	37	138	2		1	4	22	56	53	7		2	3	86	53	1
165	Dislocations	2	2		2							2						2	
†167	Burns and scalds	202	139	63	185	8	2	6	1	57	82	41	5	7	34	15	130	16	
168	Burning by corrosive substances	3	2	1	3						1	2					2	1	
169	Heat and sunstroke	44	33	11	40			4		14	5	18	3	11			20	12	1
170	Cold and freezing	17	16	1	15	1	1			4	4	3	4	1	2		7	6	1
171	Lightning	33	33		33					10	15	3	5			1	32		
172	Drowning	216	195	21	203	1	3	2	7	63	50	52	38	6	12	23	158	9	8
173	Starvation, privation, etc.	5	5		4			1			2	1	1				3	1	1
174	Inhalation of poisonous gases	88	68	20	81	1		2	4	17	21	33	10		2	1	74	11	
175	Other accidental poisonings	97	51	46	93	1	1	1	1	33	37	20	3	6	19	8	57	7	
†166	(a) Accidental gunshot wounds	94	86	8	88	2	2	1	1	30	33	19	6			8	82	4	
	(b) Injuries by machinery	22	22		21				1	7	10	4			1	1	19	1	
	(c) Injuries in mines and quarries	49	49		48				1	8	10	22	8				47	1	1
	(d) Railroad accidents and injuries	321	300	21	304	2	1	5	9	45	109	89	61		5	12	271	30	3
	(e) Injuries by horses and vehicles	94	79	15	89		2	1	2	28	27	27	7		3	14	61	16	
	(f) Other accidental traumatisms	316	285	31	307		1	4	4	60	102	118	27	4	10	16	223	57	6
176	(a) Suffocation	21	13	8	19	1			1	14	3	2		12	1	2	5	1	
	(b) Injuries at birth	53	39	14	51	1	1			51				53					
	(c) Homicide	119	98	21	93	7	5	10	4	20	25	35	15				109	5	5
	(d) Other external violence	14	14		11	1	1		1	4	2	5				1	11	2	
	(e) Earthquake and fire	709	518	191	671			31	7	114	83	146	328	19	12	16	292	56	314

	XIV. ILL-DEFINED DISEASES	495	348	152	429	12	8	37	9	156	125	108	40	116	24	6	194	144	11
*177	"Dropsy"	18	12	6	17	......	......	1	......	1	9	7	......	......	......	......	7	11	......
*178	Sudden death	14	8	6	14	......	......	......	......	1	6	5	2	......	......	......	4	10	......
*179	(a) Heart failure	62	47	15	59	......	......	......	3	3	31	22	3	1	1	......	30	30	......
	(b) Inanition (over 3 months)‡	52	22	30	50	1	......	......	1	37	7	6	......	35	6	......	2	6	......
	(c) Debility (over 3 months)‡	18	11	7	16	1	......	1	......	11	1	3	1	11	2	......	2	2	1
	(d) Marasmus (over 3 months)‡	62	29	33	57	2	1	1	1	51	4	2	......	49	8	......	3	2	......
	(e) Fever	2	1	1	1	......	......	......	1	......	......	1	......	......	......	......	2	......	......
	(f) Other ill-defined diseases	25	13	12	24	1	......	......	......	7	8	7	2	2	......	1	13	7	2
	(g) Unknown	242	200	42	191	7	7	34	3	45	59	55	32	15	7	5	131	76	8

*Indefinite and unsatisfactory title. †Order of titles changed.

‡ Deaths reported from this cause, under 3 months of age, are compiled under "Congenital debility" 151 (b).

TABLE 11.—*Deaths from each Specified Disease and Class of Diseases, classified by Sex, Race, Nativity, and Age Periods, for California: 1905-1906.—Cont'd.*

No.	Cause of Death.	Total Deaths	Male	Female	White	Negro	Indian	Chinese	Japanese	White.				Under 1 Year	1 to 4 Years	5 to 14 Years	15 to 64 Years	65 Years and Over	Age Unknown
										Born in California	Born in other States	Foreign born	Nativity Unknown						
	XI. EARLY INFANCY	851	492	359	813	14	2	13	9	813				851					
151	(a) Premature birth	455	260	195	438	6	1	4	6	438				455					
	*(b) Congenital debility	345	198	147	327	7	1	9	1	327				345					
152	Other diseases of early infancy	33	22	11	32				1	32				33					
153	Lack of care	18	12	6	16	1			1	16				18					
	XII. OLD AGE	687	396	291	666	7	3	11		4	321	330	11				23	662	2
*154	Old age	687	396	291	666	7	3	11		4	321	330	11				23	662	2
	XIII. VIOLENCE	3,138	2,552	586	2,939	32	20	85	62	678	804	849	608	119	103	124	2,106	339	347
155	Suicide by poison	147	107	40	142	1		3	1	26	36	47	33			2	126	17	2
156	Suicide by asphyxia	48	42	6	48					13	16	12	7			1	44	2	1
157	Suicide by hanging or strangulation	53	44	9	38	1		11	3	3	9	19	7				46	6	1
158	Suicide by drowning	15	13	2	14				1	4	2	7	1				12	3	
159	Suicide by firearms	157	146	11	148	2			7	25	52	49	22				143	12	2
160	Suicide by cutting instruments	33	30	3	31			1	1	4	8	15	4				27	6	
161	Suicide by jumping from high places	3	2	1	3							2	1				3		
162	Suicide by crushing	4	3	1	4					1			3				4		
163	Other suicides	14	10	4	12			1	1	1	4	5	2				12	2	
164	Fractures	145	108	37	138	2		1	4	22	56	53	7		2	3	86	53	1
165	Dislocations	2	2		2							2						2	
†167	Burns and scalds	202	139	63	185	8	2	6	1	57	82	41	5	7	34	15	130	16	
168	Burning by corrosive substances	3	2	1	3						1	2					2	1	
169	Heat and sunstroke	44	33	11	40			4		14	5	18	3	11			20	12	1
170	Cold and freezing	17	16	1	15	1	1			4	4	3	4	1	2		7	6	1
171	Lightning	33	33		33					10	15	3	5			1	32		
172	Drowning	216	195	21	203	1	3	2	7	63	50	52	38	6	12	23	158	9	8
173	Starvation, privation, etc.	5	5		4			1			2	1	1				3	1	1
174	Inhalation of poisonous gases	88	68	20	81	1		2	4	17	21	33	10		2	1	74	11	
175	Other accidental poisonings	97	51	46	93	1	1	1	1	33	37	20	3	6	19	8	57	7	
†166	(a) Accidental gunshot wounds	94	86	8	88	2	2	1	1	30	33	19	6			8	82	4	
	(b) Injuries by machinery	22	22		21				1	7	10	4			1	1	19	1	
	(c) Injuries in mines and quarries	49	49		48				1	8	10	22	8				47	1	1
	(d) Railroad accidents and injuries	321	300	21	304	2	1	5	9	45	109	89	61		5	12	271	30	3
	(e) Injuries by horses and vehicles	94	79	15	89		2	1	2	28	27	27	7		3	14	61	16	
	(f) Other accidental traumatisms	316	285	31	307		1	4	4	60	102	118	27	4	10	16	223	57	6
176	(a) Suffocation	21	13	8	19	1			1	14	3	2		12	1	2	5	1	
	(b) Injuries at birth	53	39	14	51	1	1			51				53					
	(c) Homicide	119	98	21	93	7	5	10	4	20	25	33	15				109	5	5
	(d) Other external violence	14	14		11	1	1		1	4	2	5				1	11	2	
	(e) Earthquake and fire	709	518	191	671			31	7	114	83	146	328	19	12	16	292	56	314

	XIV. ILL-DEFINED DISEASES	495	343	152	429	12	8	37	9	156	125	108	40	116	24	6	194	144	11
*177	"Dropsy"	18	12	6	17	......	......	1	......	1	9	7	......	......	......	......	7	11	......
*178	Sudden death	14	8	6	14	......	......	......	......	1	6	5	2	......	......	......	4	10	......
*179	(a) Heart failure	62	47	15	59	......	......	......	3	3	31	22	3	1	1	......	30	30	......
	(b) Inanition (over 3 months)‡	52	22	30	50	1	......	......	1	37	7	6	......	38	6	......	2	6	......
	(c) Debility (over 3 months)‡	18	11	7	16	1	......	1	......	11	1	3	1	11	2	......	2	2	1
	(d) Marasmus (over 3 months)‡	62	29	33	57	2	1	1	1	51	4	2	......	49	8	......	3	2	......
	(e) Fever	2	1	1	1	......	......	......	1	......	......	1	......	......	......	......	2	......	......
	(f) Other ill-defined diseases	25	13	12	24	1	......	......	......	7	8	7	2	2	......	1	13	7	2
	(g) Unknown	242	200	42	191	7	7	34	3	45	59	55	32	15	7	5	131	76	8

*Indefinite and unsatisfactory title. †Order of titles changed.

‡ Deaths reported from this cause, under 3 months of age, are compiled under "Congenital debility" 151 (b).

STATE HYGIENIC LABORATORY.

REPORT OF THE STATE HYGIENIC LABORATORY.

July 1, 1905, to July 1, 1906.

By ARCHIBALD R. WARD, Director,
Assistant Professor of Bacteriology, University of California.

The work of the laboratory, as defined in the legislative Act by which it was established, embraces bacteriological and chemical examinations of a kind to be designated by the State Board of Health. The limited funds available for the support of the laboratory have restricted its activity to only a few of the lines legitimately within its field and for which there is pressing demand. Under instructions from Dr. N. K. Foster, Secretary of the State Board of Health, both routine and research work has been carried on as herein reported.

The dominant idea in equipping and organizing the work of the State Hygienic Laboratory has been to extend to the health officers and physicians in smaller cities and country districts certain laboratory facilities available in the larger cities. To this end, mailing cases, with directions for use, have been prepared and distributed about the State, upon request. Twenty-one towns are supplied with these mailing cases. For the convenience of all concerned, it has been found desirable to deposit the cases in drugstores, where they may be obtained for use by the physician when needed. By this means it is possible for a limited number of outfits to be available for emergency use by the maximum number of physicians. The arrangement is especially desirable for the diphtheria mailing cases, as their contents deteriorate and need to be renewed from time to time.

The distribution of outfits has not been limited to drugstores, nor to health officers, but in numerous instances the cases have been sent directly to such physicians as constantly use them.

The mailing cases are constructed in accordance with regulations of the Postoffice Department governing the transmission of pathological material through the mails. The data cards accompanying the mailing cases for pathological material, etc., from the various diseases, contain on one side blanks for facts to be supplied by the physician, and on the other, blanks for the laboratory record of the material. These cards are uniformly three by five inches, and the blanks for each kind of determination are printed on paper of a distinctive color, as are the circulars of directions, etc.

DIPHTHERIA.

In the control of diphtheria epidemics a laboratory renders valuable assistance. A laboratory report on cultures from the throat is of use in each of the following particulars: (*a*) early diagnosis of diphtheria, (*b*) detection of mild cases, (*c*) differentiating between diphtheria and tonsilitis, (*d*) confirmation of positive clinical diagnosis, (*e*) for determining duration of quarantine after recovery.

The outfit contains a sterile swab, which is to be brought in contact with the suspected throat and afterwards rubbed over the surface of a tube of blood serum. After twelve hours' incubation a microscopic examination is made of the growth. Considerable emphasis is laid upon the necessity for prompt reports on these cultures inoculated at the bedside by the physician. A positive report enables him to apply the antitoxin treatment without the undesirable delay which would be necessitated if he waited for the full development of symptoms upon which to base a clinical diagnosis.

The diphtheria outfits of the laboratory may be sent as first-class mail, when stamped with the necessary postage, eight cents. Care is taken to insure prompt delivery of these cases from the Berkeley post-office. A messenger from the laboratory each evening collects those that have arrived too late for the afternoon delivery, so that they are not delayed over night in the postoffice.

The diphtheria work was undertaken with some idea that the delay during transportation would render the service unsatisfactory to physicians in quarters of the State far distant from Berkeley. Experience has shown the contrary. Diphtheria reports have been of use in an epidemic in Ontario, which town is over five hundred miles distant from Berkeley by rail.

During the year 330 diphtheria culture outfits have been sent in. Sacramento furnished 126, Berkeley 75, Ontario (and Cucamonga) 50, and the rest scattering. The data furnished by the physicians showed that of the 330, 120 were for diagnosis, 115 for release from quarantine, and 95 for confirmation of clinical diagnosis of diphtheria.

Several physicians, who had sent in numerous cultures, were asked for information as to just what use was made of the reports. The replies emphasize the diversity of ways in which laboratory reports are of use:

> "In reply to your favor of July 8, I will say that the greatest benefit derived from the examinations for diphtheria bacilli was in convincing certain physicians and school officials of the true nature of the epidemic, and thus making possible the establishment of quarantine and closing of schools. Had examinations been made in the first cases much trouble and expense would have been saved. Probably the next in value is the determination of the length of quarantine; one of my cases having bacilli for at least forty-five days. At this distance the benefits for early diagnosis are not so great as in nearer points, but the detection of mild cases of diphtheria and the positive proof that severe cases of pharyngitis and tonsilitis are not diphtheria, are invaluable. In fact, the laboratory is a boon to the country practitioner who has no time for such work, and to the people of limited means who have no money to pay for private laboratory work."

> "In reply to your letter of the 6th instant, I would say that we have found the use of your laboratory valuable chiefly in differentiating diphtheria from tonsilitis. In the epidemic which we had last year in and about Cucamonga the majority of the cases presented the clinical characteristics of tonsilitis, and it was only by your laboratory work that we were able to diagnose and control the disease. In this epidemic none of the cases were fatal, but a few developed serious after effects. From time to time, however, we have had fatal cases of diphtheria in our community, and it is my belief that they have developed from these cases which pass clinically as tonsilitis, but which now, by using your laboratory for the bacteriological examination, we are able to properly class as diphtheria and by the continued and more extended use of the same many lives will undoubtedly be saved."

> "Answering yours of the 6th instant in regard to value of work of the State Hygienic Laboratory, would say:
>
> "1. Greatest value of examinations in my practice (made by you) has been to give the voice of authority to diagnoses, insuring more thorough coöperation on the part of

responsible persons. This would come under your heading (*d*), confirmation of positive clinical diagnosis.

"2. Work has not happened to prove of value to me in early diagnosis of diphtheria, as I have used diphtheria antitoxin in every case where I made a clinical diagnosis, without waiting for bacteriological diagnosis.

"This is in large part due to conditions arising out of our extremely poor mail facilities. Same is true of (*b*), detection of mild cases. In one case where there was an element of doubt as between scarlet fever and diphtheria, bacteriological examination decided, although the clinical diagnosis in that case was scarlet fever.

"In its saving to municipalities, in insuring more thorough quarantine regulations and thereby cutting down net losses, not only municipal, but also individual, the wisdom of the establishment of this laboratory has, in my judgment, been completely vindicated.

"An experience in a diphtheria epidemic in Golien, Mich., in 1897-9, covering upward of 87 cases, where we were deplorably handicapped by lack of just such facilities, enables me to appreciate the work of the laboratory as I might possibly not otherwise."

"I can not too highly commend the excellent work that the Hygienic Laboratory is doing—and for my part, it has rendered inestimable service to myself during the recent diphtheria epidemic that has visited this town. Unfortunately, during the early weeks of the disease we were unaware that such help existed, and it was only when the trouble reached such a climax that we were forced to seek aid from Dr. Foster that he told us of the laboratory, and from then on our labors were lightened and the mischief began to disappear. Before we knew of the laboratory the deaths from the disease by percentage were great, and since we began using your institute we have had no deaths from diphtheria at all. We were able to make an early diagnosis and institute appropriate measures; moreover, we were able to keep under supervision suspicious cases until we heard from you, and thus limit the spread of the disease. Personally, I have used your laboratory on every case of mine and it has been a great relief to me in many ways, and I can never thank you and your assistants sufficiently for the great aid you have been to me, and I am confident that, were your institute better known, it would be the means of saving the lives of many little ones."

[All diphtheria blanks are blue.]

DIRECTIONS FOR COLLECTING SPECIMENS FOR EXAMINATION FOR DIPHTHERIA BACILLI.

STATE HYGIENIC LABORATORY—UNIVERSITY OF CALIFORNIA, BERKELEY.

Directions for Taking Specimen.

Place patient in good light, and if a child, hold properly.

Depress the tongue so as to get a clear view of throat.

With swab rub the suspicious portions firmly, twisting it around while in contact with patch.

Remove swab from throat without touching other parts of mouth if possible. Without laying down the swab perform the succeeding manipulations.

Warm the mouth of the tube of culture medium to melt paraffin, which facilitates the removal of the cotton stopper.

Remove cotton stopper from culture tube and hold between fingers, gently rubbing the swab over the culture medium without injuring its surface.

Replace cotton in culture tube and replace swab in the other tube and plug with cotton stopper.

Place in case and send immediately to laboratory. In order to prevent breakage, wrap the two tubes carefully in the manner in which they were received.

An antiseptic used immediately prior to taking the specimen will interfere with the subsequent development of the culture.

Old dried culture medium is undesirable and may retard the growth of the organisms.

RECORD CARDS FOR EXAMINATIONS FOR DIPHTHERIA BACILLI.

STATE HYGIENIC LABORATORY—UNIVERSITY OF CALIFORNIA, BERKELEY.

Please fill out this blank in full and return to laboratory with culture.

Patient's name .... Address ....
Physician's name .... Address ....
Health Officer's name .... Address ....
Has case been reported on before? .... When? ....
Patient's age .... Sex .... This is the 1st, 2d, 3d culture.
Date of earliest symptoms .... Date of taking culture ....
How contracted .... Is membrane present? ....
Has antitoxin been used? .... When? .... Amount ....
Has antiseptic been used within two hours in mouth or throat? ....
Clinical diagnosis ....
Report by { telephone / telegraph (collect) / mail

DIPHTHERIA.

Examination No..................
Date received.. Hour............
Placed in incubator.................................... Examined..........................
Result:
Type of bacillus on swab..
Type of bacillus in culture...
Associated bacilli..
Remarks...
Reported by { telephone / telegraph / mail } By.................................... Date.......................

REPORT BLANK FOR EXAMINATIONS FOR DIPHTHERIA BACILLI.

STATE HYGIENIC LABORATORY—UNIVERSITY OF CALIFORNIA.

BERKELEY,............................., 190...
Dr..
....

DEAR SIR: In the examination of the..............................culture from the case of..taken.................................. diphtheria bacilli were found.

...., Director.

Circumstances Influencing Interpretation of Results Obtained.

No diphtheria bacilli may be found in culture for a variety of reasons, as (*a*) use of antiseptic wash or spray in throat before taking specimen; (*b*) failure to apply swab thoroughly to affected region of throat; (*c*) failure to smear infected portion of swab over blood serum; (*d*) or actual absence from throat. If old dried culture tubes are used, no development or scanty growth may occur. In case of positive findings it is desirable that another test be made after the complete disappearance of membrane, before case is released from quarantine.

TYPHOID FEVER.

The Widal test is made upon blood collected dry, upon an aluminum sheet, after the method described by Dr. F. F. Wesbrook, director of the laboratory of the Minnesota State Board of Health. Thirty-two Widal tests have been made.

[All typhoid fever blanks are white.]

DIRECTIONS FOR COLLECTING SPECIMENS FOR WIDAL TEST, AND RECORD CARDS FOR THE SAME.

STATE HYGIENIC LABORATORY—UNIVERSITY OF CALIFORNIA, BERKELEY.

Outfit for Collecting Specimen of Blood for Serum Diagnosis of Typhoid Fever.

Remember that a reaction does not often occur before the end of the first week of the disease. To insure a satisfactory test, observe carefully the following directions:

Securing Sample: Wash lobe of ear or finger tip thoroughly with boiled water. Pierce skin with clean needle, and with enclosed wire loop transfer four or five droplets of blood to different spots on edge of enclosed sheet of foil. ALLOW BLOOD TO AIR DRY AT ROOM TEMPERATURE (never heat it), then fold over foil to protect blood clot.

Sending Sample: Enclose folded aluminum sheet and wire loop in this envelope, together with data blank (properly filled out), and mail to laboratory.

Telegraphic reports will be sent when requested, charges collect.

STATE HYGIENIC LABORATORY—UNIVERSITY OF CALIFORNIA, BERKELEY.

Please fill out blank in full and send to laboratory with dried blood.

Patient's name.................................... Address..............................
Physician's name.................................. Address..............................
Health Officer's name............................ Address..............................
Has this case been reported before?............... When?................................
Patient's age.................. Sex.................... This is the 1st, 2d, 3d specimen.
How long since disease commenced?........... Date of taking specimen..................
Supposed source of infection...
Has patient been away during month previous to illness?.................................
When, if ever before, has patient had typhoid fever?......................................
Clinical diagnosis..............................
Report by { telephone / telegraph (collect) / mail }

TYPHOID FEVER.

Examination No..................
Date received.. Hour..............
Age of culture.......................... Strain..............................
Dilution.................... Agglutination.................... Time..............
Remarks..
....
....

Reported by { telephone / telegraph / mail } By.............................. Date....................

Report Blanks for Examinations for Typhoid Fever.

STATE HYGIENIC LABORATORY—UNIVERSITY OF CALIFORNIA.

Berkeley,.........................., 190..

Dr...
....

Dear Sir: The..............specimen of blood of...................................
taken................................, diluted...
the reaction characteristic of typhoid fever.

...., Director.

Circumstances Influencing Interpretation of Results Obtained.

The reaction characteristic of typhoid fever is not likely to occur earlier than the fifth day of the disease.

The reacting substance persists in the blood for a considerable time after recovery. One must therefore be sure that a previous attack has not happened within two years.

"A negative result obtained with the serum of a case of suspected typhoid affords a presumptive evidence against the diagnosis of typhoid fever, but this is only probability, especially if the examination has been made in the first few days of the disease. The examination should then be repeated within the next few days. The presumption that a case in which a negative result has been obtained is not typhoid, becomes stronger as the stage of the disease becomes more advanced." (Widal.)

In doubtful cases we will examine later samples of blood at intervals of about two days, until diagnosis is settled.

Please let us know if the course of the case shows anything different from what our findings would lead you to expect.

TUBERCULOSIS.

Fifty-four examinations of sputum for tubercle bacilli have been made.

[All tuberculosis blanks are yellow.]

Directions for Collecting Sputum.

STATE HYGIENIC LABORATORY—UNIVERSITY OF CALIFORNIA, BERKELEY.

Directions for Collecting and Sending Sputum.

The expectoration discharged in the morning is preferred.

Have the patient wash out the mouth and throat with pure water early in the morning and then cough up the sputum from the lower air passages.

Care should be taken that the contents of the stomach, articles of food, etc., are not discharged during the act of expectoration and collected instead of the ordinary sputum. Purulent, cheesy, and muco-purulent sputum most frequently contain the bacilli; pure mucus, blood, or saliva do not, as a rule, contain the bacilli.

If the expectoration is scanty, the entire amount discharged in twenty-four hours should be collected.

The sputum should not be kept, but forwarded in as fresh a condition as possible.

Record Cards for Examinations for Tubercle Bacilli.

STATE HYGIENIC LABORATORY—UNIVERSITY OF CALIFORNIA, BERKELEY.

Please fill out this blank in full and send to laboratory with sputum.

Patient's name.................................. Address..........................
Physician's name................................ Address..........................
Health Officer's name........................... Address..........................
This is the 1st, 2d, 3d specimen discharged during............. Date..............
Patient's age.............. Sex.............. Occupation..............................
Are there other cases in the same household?.............. If so, how many?..........
Clinical diagnosis..................................
Report by { telephone / telegraph (collect) / mail }

TUBERCULOSIS.

Examination No.................
Date received.. Hour..................
Result:
  Number of tubercle bacilli..
  Associated bacilli..
  Other contents of sputum...
Remarks...
....
Reported by { telephone / telegraph / mail } By .... Date...................................

REPORT BLANKS FOR EXAMINATIONS FOR TUBERCLE BACILLI.

STATE HYGIENIC LABORATORY—UNIVERSITY OF CALIFORNIA.

BERKELEY, ..., 190..
Dr...
....

DEAR SIR: In the examination of the..................................specimen of sputum from.. taken... tubercle bacilli were found.

...., Director.

Circumstances Influencing Interpretation of Results Obtained.

If the result of the examination is negative, it is not to be assumed that the case is not one of pulmonary tuberculosis, for frequently, in this disease, tubercle bacilli are at times absent from the sputum and the disease can only be probably excluded if repeated examination of the sputum fails to show the presence of bacilli. If the first examination in a case is negative, other specimens should be sent for examination.

The demonstration of the presence of tubercle bacilli in the sputum proves conclusively the existence of tuberculosis, but the absence of tubercle bacilli, or the failure to find them microscopically, does not exclude the existence of the disease.

BUBONIC PLAGUE.

One culture from a suspected case of bubonic plague was submitted by a municipal laboratory, in order that another independent conclusion might be reached. A detailed study of the culture, and of the lesions produced by it in guinea pigs, led to its recognition as *B. pestis*.

WATER SUPPLIES.

Sixty-seven samples of water have been examined with reference to sewage pollution. The impression exists in many quarters that a bacteriological examination of the water supply during a typhoid epidemic will determine exactly whether or not the water is the source of infection. Much more conclusive evidence could be obtained by a careful study of a history of the cases with particular reference to the source of their drinking water, previous to attack. To insure the most satisfactory results, it is desirable that the judgment of the character of a water supply be drawn from facts derived by (*a*) sanitary survey of the source, (*b*) bacteriological examinations of samples preferably collected by an expert, (*c*) chemical analysis. In reporting on many samples of water it has been necessary to rely upon persons submitting the sample, for information about the sanitary condition of the source. For the chemical work, Prof. George E. Colby, of the College of Agriculture, has generously contributed his services.

To put this branch of the laboratory in a thoroughly satisfactory condition will require a large amount of bacteriological work to determine the kinds and numbers of bacteria present in the various sources of water supply at different seasons.

The demand for the study of water supplies and the importance of the subject warrants the addition of two experts to the staff of the laboratory to handle the water work.

[Water blanks are pink and red.]

DIRECTIONS FOR COLLECTING SAMPLES OF WATER.

STATE HYGIENIC LABORATORY—UNIVERSITY OF CALIFORNIA, BERKELEY.

Directions for Collecting Samples of Water.

The outfit for obtaining water samples consists of two parts. The gallon bottle is for the sample for chemical analysis. The small bottle, for the sample for bacteriological examination, has been sterilized before being sent from the laboratory and must not be opened until ready to collect. The two bottles must be filled at the same time and at the same place.

Sample for Bacteriological Examination.

When you are ready to take the sample, not before, take the small bottle from the can. Under no circumstances touch the stem of the stopper, nor allow the inside of the neck of the bottle to touch anything. Do not lay the stopper down, but hold it in the fingers by the head until sample is taken.

From a Stream, Pond, or Reservoir: Loosen, without removing, the stopper. Hold the bottle in one hand and the stopper in the other. Lower bottle about a foot below the surface, avoiding any scum or sediment. Then remove the stopper quickly to a distance of one foot. Turn the mouth of the bottle away from the hands and move it forward while it is filling. If there is a current, turn the mouth of the bottle against it. The bottle must be filled only to the base of the neck, leaving an air space. Replace the stopper and immediately fasten it in securely with the foil.

From a Tap: Allow the water to flow 10 minutes before filling the bottle. Do not rinse out the bottle.

From a Pump: Pump should be in continuous operation for at least 10 minutes, preferably half an hour, before sample is taken.

Place the small bottle in the smaller can and press the lid down. Then pack it in broken ice and excelsior in the larger can.

Sample for Chemical Examination.

Before collecting a sample, the bottle and stopper must be thoroughly rinsed twice with the water to be examined, and neither the inside of the neck of the bottle nor the stem of the stopper must be touched by the hand or wiped with a cloth during or after these operations.

After rinsing, fill the bottle to a point about 2 inches below the bottom of the stopper. Secure the stopper in the bottle by means of a clean cloth, or a clean heavy paper, double if necessary and tie about the neck of the bottle.

From a Tap, Spigot, or Hydrant: Allow the water to run for fully 10 minutes before collecting, then rinse and fill the bottle as directed above.

From a River, Pond, Reservoir, or Basin: Rinse the bottle as directed. Lower it, with the stopper in place, into the water to a depth of 12 inches below the surface, remove the stopper, allow the bottle to fill completely and replace the stopper before bringing to the surface to avoid collecting any scum. When brought to the surface, pour out a small quantity so that the sample shall fill the bottle to a point 2 inches below the bottom of the stopper. If the water is shallow, collect the running water in a clean vessel and pour into bottle. Precautions must always be taken not to stir up any sediment.

Shipping.

Fill out fully the card, in the envelope attached to the lid, according to the direction printed thereon, and then replace in same envelope. Place both bottles in their proper compartments in the shipping case, lock the box with the enclosed padlock and ship, by express, prepaid, to the State Hygienic Laboratory, University of California, Berkeley, Cal., as soon after collection as possible. Samples should not be sent so as to be en route over Sunday.

RECORD CARDS FOR WATER EXAMINATION.

To be filled out by person collecting sample.

Time of collection: Year?....Month?.........Day?........Hour?...Min.?... a.m. or p.m.?

(Give exact description of source, whether from tap, stream, reservoir, or pond, and if there are any unusual conditions these should be noted under the head of "Remarks.")

Sample from ....

Remarks ....

....

Collected by ....

STATE HYGIENIC LABORATORY—UNIVERSITY OF CALIFORNIA, BERKELEY.

Chemical Examination of Water.

(Parts per million.)

Serial No.	Received.			Temp.	Odor.	Appearance.		Residue on Evaporation.			
	Year, Day, Month.	Hour.	A. M. or P. M.			Turbidity.	Color.	Total Solids.	Suspended Matter.	Dissolved Mineral Matter.	Loss on Ignition.

Nitrogen as					Oxygen Dissolved.	Chlorine.	Iron.	Acidity.	Alkalinity.	Incrustants.	Total Hardness.	Free Carbonic Acid.
Free Ammonia.	Organic Nitrogen.	Albuminoid Ammonia.	Nitrites.	Nitrates.								

STATE HYGIENIC LABORATORY—UNIVERSITY OF CALIFORNIA, BERKELEY.

Bacteriological Examination of Water.

Examination No.............. Age of sample.............. Date......................
Agar plates: Inoculated with.................... Incubated for....hrs. at..............
Colonies per c.c. .... Average............
Gelatin plates: Inoculated with .... Incubated for....hrs. at..............
Colonies per c.c. .... Average............
Glucose bouillon: Incubated at ....for ....

Amount Used.	100 c.c.	10 cc.	1 c.c.	0.1 c.c.	0.01 c.c.
Gas					
$\frac{H}{CO_2}$					

Remarks ....

Presumptive tests for *B. coli:*

Character of Colony on Litmus Lactose Agar.	Ordinary Agar.	Gelatin.	Fermentation Tube.				Indol	Milk coagulation.	Reduction of Nitrates.
			Turbidity.	% Gas.		$\frac{H}{CO_2}$			
				24 hrs.	48 hrs.				

Reported by { telephone telegraph mail } by .... Date ....

MISCELLANEOUS PATHOLOGICAL WORK.

Ninety-six determinations of various kinds have been made. These comprise examinations of material from cases of anthrax, glanders, gonorrhea, and examinations of blood, milk, and urine. The urine and blood work was done for the physicians in charge of the hospital for San Francisco refugees, established on the University campus.

[Miscellaneous blanks are salmon.]

RECORD CARDS FOR MISCELLANEOUS EXAMINATIONS.

STATE HYGIENIC LABORATORY—UNIVERSITY OF CALIFORNIA, BERKELEY.

Miscellaneous Examinations.

Material.................................... Animal....................................
Received from.................................... Address....................................
Description of material ....
....
Clinical diagnosis ....
Cultures....................................
....

Examination No...................
Injected into ....
Result....................................
Microscopical examination—
Direct ....
Hardened in.................................... Embedded in ....
Sectioned.................................... Stained....................................
Result....................................
Chemical examination....................................
....

Reported by { telephone telegraph mail } By.................................... Date....................................

ASSISTANCE TO THE SAN FRANCISCO HEALTH COMMISSION.

Owing to the crippled condition of the bacteriological laboratory of the San Francisco Health Commission, a considerable amount of culture media has been supplied to them. At the request of Dr. D. F. Ragan, the Health Officer of San Francisco, an examination was made of some bottled "soft drinks" made in Oakland, and sold in large quantity in San Francisco shortly after the fire. A quotation from the report made to Dr. Ragan is herewith presented: "The important fact revealed by the bacteriological examination of these beverages is that the water of which they were made was not boiled. The last three, judged as drinking water, from a bacteriological standpoint, would be reported 'probably unsafe.'"

MUNICIPAL MILK SUPPLY.

During the summer of 1905, Dr. George F. Reinhardt, Health Officer of Berkeley, enforced the dairy ordinance requiring that cows supplying the town be tested with tuberculin. The opposition of the dairymen resulted in the disclosure of legal flaws in the ordinance, which prevented the completion of the work. The writer supervised the testing of the cows and herewith presents some extracts from a report on the work, made to the town health officer:

STATISTICAL SUMMARY.

All Dairies—	
Number of cows tested	383
Number of cows approved	319
Number of cows condemned	64
Retest, not included in other figures	4
Per cent condemned	16.7
Large Dairies—	
Number of cows in dairy over five	329
Number of cows approved	267
Number of cows condemned	62
Per cent condemned	18.8
Small Dairies—	
Number of cows in dairies of five and less	54
Number of cows approved	52
Number of cows condemned	2
Percent condemned	3.6

Of the sixty-four animals condemned, I regarded nine as showing physical signs of tuberculosis and would have condemned them without the additional evidence furnished by their reacting to the test. The others would not have been recognized as tubercular unless the test had been used. It does not follow that a cow reacting to the tuberculin test, but not showing physical signs of tuberculosis, is not a source of danger to public health and to other animals. On the contrary, it is a well-recognized fact that cows may frequently appear in the best of condition and yet be extensively affected with tuberculosis. Dairymen keep weeding out those cases which are visibly diseased, in their judgment, but the practice does not materially improve conditions with respect to the existence of tuberculosis in the herds. Any inspection for tuberculosis, other than by the use of the tuberculin test, will fail to accomplish the desired purpose.

The fact that 18.8 per cent of all cows tested in large dairies about Berkeley were tubercular, and that of the cows isolated from others of their kind only 3.6 per cent reacted, illustrate well the contagious nature of tuberculosis.

The experience of others, and my own in similar work elsewhere, leads me to conclude that the above figures regarding the percentage of tuberculosis in large dairies do not give an exaggerated idea of the conditions existing in other large dairies. Once it has been my disagreeable duty to condemn thirty-five per cent of a herd of one hundred and twenty cows. In such large dairies where the tuberculin test has not been used to improve conditions, the percentage of tuberculosis will be found much higher than the general average found so far in Berkeley dairies.

CHEMICAL WORK.

No chemical work such as herein reported would have been possible but for the generous assistance of chemists of the Agricultural Department of the University. Professor Colby's assistance has been mentioned in connection with the discussion of water examination.

The examination of food products with reference to their nutritive value and with reference to the presence of preservatives, or adulterants, is a branch of public health laboratory work, the importance of which is obtaining wide recognition. To enable the laboratory to meet the demand for this class of work, Prof. M. E. Jaffa has kindly volunteered his services, and herewith submits a report on the chemical work done for the State Hygienic Laboratory:

It has been the ardent wish of the Food Laboratory of the University of California to have exercised in this State a modern Food Inspection law, similar to the Fertilizer Control law. Therefore, with a view of creating a greater demand for, and exciting public interest in, this line of work, the personnel of the Food Laboratory has done all that it could, with its limited facilities, to assist the State Hygienic Laboratory.

Chemical analyses have been made of foods and other materials received from different parts of the State. The nature of the examinations has been very varied, as will be seen by a review of the data here presented. A small portion of the work accomplished has appeared from time to time in the bulletins of the State Board of Health, but by far the major part has been of purely local interest, so has not been made public. Among the important analyses made at laboratory, the following may be cited:

Evaporated Creams.—In response to many inquiries concerning the nutritive value of so-called evaporated creams, a systematic investigation was undertaken of all samples of those foods to be found in the local market.

Analyses of so-called Evaporated Creams.

Lab No.	Brand.	Manufacturer.	Water.	Casein, etc.	Fat.	Lactose.	Mineral Matter.
512	Carnation brand sterilized cream	Pac. Coast Cond. Milk Co.	76.78	6.06	7.50	8.11	1.55
519	California Poppy brand evaporated cream	Cold Brook Creameries	78.90	6.23	5.90	7.80	1.17
520	Isleton evaporated cream	Western Creameries Co.	77.99	5.88	6.90	8.00	1.23
546	Lily cream	Pacific Creamery Co.	78.21	6.12	5.40	8.91	1.36
547	Jersey evaporated sterilized cream	Cond'sed Milk Co. of Cal.	80.22	5.55	4.80	8.18	1.25
548	Highland brand evaporated cream	Helvetia Milk Cond'g Co.	72.48	7.56	7.50	10.86	1.60
549	Yacht brand evaporated cream	Borden Cond. Milk Co.	75.28	7.15	8.10	7.84	1.63
586	Pet brand evaporated cream	Helvetia Milk Cond'g Co.	70.47	7.57	9.90	10 42	1.64
587	Red Ribbon evaporated cream	Elmira Cond. Milk Co.	78.81	5.87	5.70	8.83	1.29
588	Silver Cow evaporated cream	St. Charles Milk Cond. Co.	70.73	7.42	9.30	10.93	1.62
593	Alpine cream	Alpine Evap. Cream Co.	75.18	6.72	7.20	9.46	1.49
594	Pioneer brand evaporated cream	Borden Cond. Milk Co.	70.45	7.27	10.20	10.55	1.53

No determinations were made on the above samples for either adulterants or preservatives. The investigation was undertaken with a view of showing the necessity of a food inspection law which would enable consumers to buy food materials honestly labeled.

These tabulated results show that the "evaporated creams" do not approach in fat content that of an average cream, which should contain at least twenty per cent fat. The food value of these products is about double that of ordinary milk, and consequently they should be labeled "condensed milk."

On the Occurrence of Hydrocyanic Acid in Johnson-Grass.—Word was received at the University of California that cattle were dying at Los Banos. Owing to the nature of the symptoms it was decided to make a chemical analysis of Johnson-grass (*Sorghum halepense*), which appeared to be the cause of the deaths. The result of the chemical analyses showed conclusively that the grass contained hydrocyanic acid in appreciable quantities. A request was then made to the owner of the cattle for another specimen of the Johnson-grass, and also of one of a rank-growing grass at the same stage of growth as the Johnson-grass, but which did not kill the cattle. Upon receipt of the specimens at the laboratory, chemical examinations were made, with the result that hydrocyanic acid was found in the fresh Johnson-grass to the extent of five-hundredths of one per cent; and to be entirely absent from the other specimen—barnyard-grass (*Panicum crus-galli*). This is the first time in California (to our knowledge) that hydrocyanic acid has been found in Johnson-grass. In Bulletin No. 77, issued in January, 1903, by the Agricultural Experiment Station of the University of Nebraska, are given the results of a similar investigation made there with reference to common sorghum and kaffir corn, both of which are relatives of the Johnson-grass. The following paragraph, referring to antidotes, is taken from the bulletin in question:

"Prussic acid has a tendency to unite with certain carbohydrates, forming additional products. These compounds are much less poisonous than the free acid. Both glucose and milk sugar unite with prussic acid to some extent even in dilute solutions. Aside from this action these carbohydrates retard the action of enzym in liberating prussic acid. These facts suggest that, in case the animal is not in such a condition as to render medical treatment out of the question, the following may be effective: A strong solution of glucose, which nearly every farmer has on hand in the form of 'corn syrup,' or molasses, may be administered. Large quantities of milk have in a number of instances been administered, apparently with good effect. In all cases the animal should have as much fresh air as possible."

Lye-peeled Peaches.—Much discussion has arisen concerning the safety of the process of treating peaches with lye so as to admit of rapid and economical peeling of the fruit to be canned. The fruit is immersed in hot lye for a very short period and is then washed several times with cold water, thus removing the alkali. In order to test the alkalinity of the juice of canned peaches put up by the lye process, and compare it with that of the fruit as usually canned, two analyses were made—one of lye-processed peaches and the other of a can of hand-peeled fruit. The result of the analyses showed that neither can showed alkaline juice. The acidity of can No. 38 was 0.32 per cent calculated in terms of sulphuric acid, while that of can No. 4 was 0.39 per cent. These figures are only very slightly below, if at all below, the acidity of a ripe peach. We have data for the acidity of some ripe peaches which show 0.5 per cent, which is very little higher than that shown in No. 4. There is nothing harmful in any way in these peaches.

Chemical Investigation for Board of Health of Santa Clara County.—These analyses were made in accordance with requests of Dr. Simpson to the State Hygienic Laboratory, and included a considerable number of samples of canned fruit and vegetables. It is a source of satisfaction to know that none of the samples tested were found to contain any preservative, or subject deleterious to health.

Work Done for Board of Health, Point Richmond, Cal.—During the last three months this laboratory has examined twenty-five samples of milk for Dr. Barney, Health Officer, Point Richmond, with reference to the chemical composition and adulterants. Two of the samples submitted showed the presence of formalin in appreciable quantities. The use of this antiseptic, however, has been discontinued, through the energetic efforts of Dr. Barney.

Milks.—A large number of analyses of samples of milk and cream have been made in response to inquiries sent in from Alameda and other parts of the State. In every case preservatives have been tested for in addition to the usual analysis made for the purpose of ascertaining the quality of the milk.

Examination of Miscellaneous Samples of Foods and Food Products, Preservatives, etc.—These have included the analyses of specimens of grape juice (1), raspberry wafers (2), flours (6), butters (3), condensed milks (5), creams (10), hay (2), formalin (5).

Toxicological Work.—In addition to the work done on foods and food products, no inconsiderable time was spent on examinations of materials for the occurrence of poisons. Prominent among such was the testing of organs from animals suspected of having died of poisoning. In response to the request of the Napa State Hospital, examinations were made of contents of stomachs of some cows which had died under suspicious circumstances. Tests were made for common poison in the contents of the stomach and also of some of the organs, as the liver, etc. Negative results were obtained in every case. The contents of stomachs showed high alkalinity which suggested poison by lye; a further examination showed the presence of an excess of potash. This fact, in connection with the symptoms, conclusively showed that the animals had died of lye poisoning.

M. E. JAFFA.

INVESTIGATIONS OF THE SAN FRANCISCO MILK SUPPLY.

On October 3, 1905, the Board of Supervisors of the City and County of San Francisco passed the following resolutions, afterwards approved by the Mayor:

> *Resolved*, That Professor A. R. Ward, Director of the State Hygienic Laboratory, at the University of California, and Professor M. E. Jaffa, also of the University of California, be and they are hereby requested to inspect the dairies and investigate the milk industry of the city;
>
> *Further resolved*, That the sum of $925 be and it is hereby set aside out of the fund for urgent necessities to cover the expense of bacteriological examinations of milk.

Later, to provide for a continuance of the work, a similar resolution was passed, as follows:

> *Resolved*, That the sum of seven hundred dollars ($700) be and is hereby set aside out of the appropriation for urgent necessities to complete the investigation of the dairies and milk supply of this city under the direction of the State Hygienic Laboratory of the University of California.

A staff of assistants to carry on the necessary field and laboratory work was organized with all possible expedition. Work was carried on for about three months, during which time it was possible to make a thorough survey of the condition of the San Francisco milk supply. Besides the inspections of dairies and cows, a large amount of microscopical work was done in the examination of milk for leucocytes.

Herewith are presented copies of the two reports made to the San Francisco officers regarding the character of the milk supply. A paper on "The Numerical Determination of Leucocytes in Milk," based on data obtained in the San Francisco milk investigations, forms a part of the present report.

DR. A. A. D'ANCONA, *San Francisco, California.*

DEAR DOCTOR: We herewith present a preliminary report of the special investigation of the San Francisco milk supply conducted by us during the past four weeks.

In view of the public alarm over the use of chemical preservatives in milk we have endeavored to examine for such substances as many samples as possible. These represent the product as it reaches the city, and as it is sold to the consumer from wagons bakeries, and groceries.

Five hundred and forty-nine (549) samples of milk and cream have been analyzed for boracic acid compounds, formaldehyd, carbonates, and coloring matter. Boracic acid was found in five (5) samples—four cream, three of which were labeled "Borated Cream," and in one sample of milk. (See Appendix A.) None of the other substances mentioned above were found in any case. Tests were made for fluorids in all samples not soured within twenty-four hours after arrival at the laboratory, but the result was negative in every case.

In four hundred and forty-six (446) samples, representing the milk as it reaches the consumer, the specific gravity was determined and quantitative determinations were made for fat and ash, In thirty-eight (38) samples the fat was below the three per cent (3%). Details concerning these appear in Appendix B. In sixty-seven (67) samples the fat per cent ranged from 3 to 3.3 per cent, inclusive. (See Appendix C.) A map showing areas covered by city collector is appended.

Of the total number mentioned, one hundred and three (103) analyses were made of samples representing the milk as it reaches the city via train, boats, and wagon. In each case quantitative determinations were made for all of the milk constituents, in addition to the tests for preservatives above noted. These samples represent practically all of the large producers supplying the city. Of these, only three (3) showed a fat content under 3.4 per cent and none under 3 per cent. (See Appendix C.) No preservatives were found in any samples.

It should be stated that the casein and ash percentages were lower in many cases than the average generally accepted. This does not mean that the milk in question had been sophisticated, for the fat and sugar contents were normal, but merely indicates a condition not usually supposed to exist. Consequently a duplication of samples is desirable in these cases.

The exceptionally good showing of the samples examined for preservatives can hardly be taken as indicating the condition of the milk at other seasons of the year. The recent great popular protest, the hue and cry of the press, and the activity of the City Board of Health, have doubtless been the means of checking the use of preservatives in the milk. It should be noted that the present season furnishes the most favorable conditions for the keeping of milk without the use of chemical preservatives.

The number of leucocytes in milk, and the significance thereof, is receiving the serious attention of progressive health departments at present. Methods for the determination of leucocytes are being gradually perfected, and the number of leucocytes to be regarded as abnormal is still a subject of investigation.

We have made two hundred and twenty-seven (227) microscopic examinations for leucocytes, and find that in but one case have they exceeded the tentative standards set by health departments of Philadelphia and Boston. We believe, however, that before drawing conclusions it would be highly desirable that these laboratory investigations should be accompanied by a careful examination of the udders of the cows; but the opportunity to do this has been limited.

An important phase of an investigation of the kind in which we are engaged is the sanitary inspection of all dairies supplying milk to the city, and of milk depots in the city. Our inspectors are provided with printed blanks, in which are enumerated, in condensed form, the points covered by the San Francisco dairy ordinances. They are also provided with a score card adopted by the State Dairy Bureau. By the intelligent use of these blanks it is possible to collect accurate data regarding the sanitary condition of the dairies and the condition of the udders of the cows as regards disease. Specimens of the blanks mentioned are submitted in Appendix D. About twenty-five (25) dairies outside of the city have been inspected, the score averaging seventy-seven (77) out of a possible one hundred (100) points. About twenty-five (25) milk depots have been inspected.

Statistical Summary.

Total number of samples examined chemically	549
Samples subjected to *complete* chemical analysis	103
Samples from vendors, examined for specific gravity, fat, ash, and preservatives	446
Samples from vendors, illegally containing boracic acid compounds	2
Samples from vendors (cream), labeled "Borated"	3
Samples from vendors containing other preservatives or coloring matter	none
Samples from vendors containing less than 3% fat	38
Samples from vendors containing between 3% and 3.3% fat, inclusive	64
Samples representing milk as it arrives in the city	103
Of these, containing less than 3% fat	none
Of these, containing less than 3.4% fat	4
Of these, containing preservatives or coloring matter	none
Total number of examinations for leucocytes	227
By the Doane-Buckley method	126
By the Philadelphia Bureau of Health method	101
Total number of numerical determinations of bacteria	35
Number of samples exceeding 500,000 per c.c.	1
Number of samples below 500,000 per c.c.	34
County dairies inspected	25
City milk depots inspected	25

Plans for Completion of Investigation.—About seventy-five dairies in the country have not yet been inspected and about the same number of milk depots in the city should be visited. This is obviously important in connection with an undertaking of this kind, and especially so as we are devoting attention to the condition of the cows' udders. This latter phase referred to is essential in throwing light upon the significance of leucocytes in milk. As yet, comparatively few numerical determinations have been made of the bacteria in milk.

The study of the subject of pathogenic bacteria in milk would be incomplete without examinations for tubercle bacilli. This requires that the samples be centrifuged and that guinea pigs be inoculated with the sediment thus obtained.

Many of the samples have shown a low casein and ash content, far below the accepted normal, while other constituents remained normal. In view of this, it seems highly desirable that further quantitative determinations be made on samples from dairies that have previously shown this abnormality. This point is of importance in connection with the careful modification of milk for infant feeding.

In conclusion we will say, in our opinion, the progress of the work, as outlined by the resolutions of your Board, is approximately half completed.

Respectfully submitted.

(Signed) M. E. JAFFA.
A. R. WARD.

APPENDIX A.

Samples found Adulterated with Boracic Acid Compounds and not so marked.

Lab. No.		Taken at	Nature of Sample.	Date.	Boracic Acid per cent.
180	L. Hauser	2216 Fillmore Street	Unbranded borated cream	Nov. 20	
528	H. Mesenburg	370 Hayes Street	Unbranded borated milk	Dec. 8	

APPENDIX B.

Summary of Determinations of Fat Ranging Below Three Per Cent.

Lab. No.		Taken at	Date.	Fat, per cent.
11	Prost's Bakery	226 Third Street	1905 Nov. 14	2.3

(In the original report this consisted of a record of thirty-eight samples, arranged like the above, but here omitted.)

APPENDIX C.

Summary of Determinations of Fat Ranging from 3.0 to 3.3 Per Cent inclusive.

Lab. No.		Taken at	Class of Business.	Date.	Fat, per cent.
3	J. E. Wagner	347 Fourth Street		1905 Nov. 14	3.2

(In the original report this consisted of a record of sixty-five samples, arranged like the above, but here omitted.)

APPENDIX D.

(Blanks used in dairy inspections.)

Blank for report on Inspection of Dairies with respect to the San Francisco Dairy Ordinances.

Owner.................Location.................A. M.......P. M.
No. cows......; No. dirty......,......%; No. diseased......,......%
Diseases.................
Stable floor wood, cement, leaky, gutter, drain.................
Stable walls whitewashed. Lighting sufficient. Bucket rest.................
Privy or manure inside. Beds. Feed. Troughs clean.................
Manure accumulates outside. Cows access to. Cows' drinking water.................
No. milkers........ Clean........ Wash........ Healthy........ Fore milk........
Milk room isolated. Floor tight, washed daily, cement, wood, drain.................
Walls tight, screened. Wooden vats, painted, clean.................
Milk cooled by.................to......° F. Leaks. Strainer.................
Utensils, rust, cracks, clean. Pegs. Stored well.................
Washing compound, soap. Renew. Rinsed in flowing water.................
Scalded in closed vats................. Steam.................
Wooden vats metal lined.................Water polluted or pure.................

State Dairy Bureau Score Card.

Owner .... Address ....

	Perfect.	Rating.		Perfect.	Rating.
Healthy appearance of cows	5		Pig and calf quarters	1	
Cleanliness of cows	10		Stale milk and refuse	2	
Water, source and purity	7		Utensils, construction of	2	
Cowyard—room, condition, etc.	10		Cleaning and sterilizing	5	
Stable, ventilators, floor, etc.	10		Separator clean	2	
Manure, disposal of	5		Churn clean	1	
No decayed food in mangers	5		Attendant's clothing	2	
Cobwebs	3		Attendant's hands	2	
Stable, whitewashed	5		Udders cleaned	1	
Dairy room, clean	5		Milk at once removed to dairy	3	
Dairy room, distance of drainage	2		Fore milk	1	
Dairy room floor	3		Aërated and cooled, 68° F.	2	
Cleaning facilities	2		Sediment in milk	2	
			Butter, packing and weight	2	
Total				100	

FEBRUARY 1, 1906.

To the Committee on Hospital and Health of the Honorable Board of Supervisors of the City and County of San Francisco.

GENTLEMEN: As a portion of our report of work to date, we submit a copy of the preliminary report of December 11, 1905, to Dr. A. A. D'Ancona, chairman of the committee at that time.

The greater portion of the work done since December 11 concerns the sanitary condition of the dairies in and about San Francisco.

The inspections have included practically all of the dairies shipping milk to the city on the California Northwestern and North Shore Railroads and those within the City and County of San Francisco. Eighty-six (86) dairies have been inspected with reference to the details of building construction, health of cows, and manner of milk handling mentioned in the dairy ordinances of the City and County of San Francisco.

Attention should be called to the fact that only those dairies situated within the city and county can be forced to comply with certain features of the city dairy ordinances. Nevertheless, we have reported all on the basis of their having complied with or violated the ordinances in question.

In the following list we present an analytical summary of the results of the inspections. There is given the percentage of compliance with and of violation of the various features of the ordinance:

Number of dairies inspected		86
Number of cows inspected		9,199
Dairies in which were found cows with inflamed udders		31%
Dairies in which other diseases were observed		24%
Dairies entirely healthy in appearance	Compliance,	43%
Dairies showing dirty cows	Violation,	33%

Stable.

Stable floor cement		2%
Stable floor wood		95%
Stable floor cement and wood		2%
Stable floor leaky	Violation,	30%
Gutter present	Compliance,	87%
Drain present	Compliance,	28%
Walls whitewashed	Compliance,	89%
Lighting sufficient	Compliance,	67%
Bucket rest three feet from floor, present	Compliance,	66%
Privy inside stable	Violation,	3%
Manure accumulates inside stable	Violation,	11%
Manure allowed to remain in heaps outside for over seven (7) days	Violation,	72%
Cows have access to above	Violation,	51%
Sleeping quarters under cow stable roof	Violation,	21%
Feed apparently wholesome	Compliance,	98%
Feeding troughs clean	Compliance,	97%
Cows' drinking water apparently wholesome	Compliance,	96%

Milkers.

Number		355
Clean in appearance	Compliance,	96%
Wash hands before milking	Compliance,	65%
Apparently healthy		100%

Milk Room.

Isolated from stable	Compliance,	86%
Floor tight	Compliance,	93%
Washed daily	Compliance,	95%
Drain present	Compliance,	64%
Floor constructed of cement		55%
Floor constructed of wood		36%
Floor constructed of cement and wood		5%
Floor constructed of neither		2%
Side walls tight	Compliance,	90%
Windows screened	Compliance,	54%
Vats painted	Compliance,	23%
Vats clean	Compliance,	50%
Milk cooled by aërator		89%
Milk cooled by standing tanks in water		2%
Milk cooled naturally		6%
Milk not reported		1%
Leaks present in milk cooler	Violation,	30%

Utensils.

Strainers used		100%
Rust present in utensils	Violation,	23%
Cracks present in utensils	Violation,	9%
Clean utensils	Compliance,	97%
Utensils hung on pegs	Violation,	15%
Utensils stored in suitable place after washing	Compliance,	95%
Soap or washing compound used	Compliance,	100%
Utensils scalded	Compliance,	100%
Wooden vats, metal lined	Compliance,	15%
Water used for washing, apparently pure source		91%

Thirty-three (33) of the more important city milk depots have been inspected, and the results appear as follows:

Analytical Summary of Results of Inspection of City Milk Depots.

Milk room isolated		72%
Floor tight	Compliance,	97%
Floor washed daily	Compliance,	90%
Floor cement		51%
Floor wood		30%
Floor cement and wood		18%
Walls tight	Compliance,	90%
Windows screened	Compliance,	97%
Vats wood		69%
Vats painted	Compliance,	54%
Vats clean	Compliance,	72%
Milk cooled by shipper only		45%
Milk cooled at city depot with ice		27%
Milk cooled at city depot with aërator		6%
Milk cooled at city depot by standing tanks in water		3%
Milk cooled at city depot naturally		3%
Milk cooled unreported		15%
Leaky aërators	Violation,	30%
Strainers used		75%
Utensils rusty	Violation,	21%
Utensils containing cracks	Violation,	21%
Utensils hung on pegs	Violation,	6%
Utensils stored in suitable places after washing	Compliance,	94%
Washing compound or soap used	Compliance,	100%
Utensils scalded	Compliance,	100%
Wooden vats, metal lined	Compliance,	51%

The rating of the dairies by the use of the score card of the State Dairy Bureau makes it possible to present in small compass a statement of the relative condition of the dairies. The score card assigns a definite score for perfection in each of the important points in the construction of buildings and management of the dairy. The inspector, during his work, assigns to each feature on the card a number indicating in his judgment of the nearness to which each feature approaches perfection. With this system the perfect dairy would score 100 points. Table III gives a statement of the relative condition of the eighty-two dairies, based on the score. (This table in the original report contained a list of names of owners, location and score, arranged in order of excellence. To economize space, the list is omitted here.)

To give a better idea of the average conditions found, we may arrange the dairies in groups scoring within 10 per cent of one another, as follows:

Sanitary Rating. Perfection, 100%.

Dairies scoring from 90 to 100%	12
Dairies scoring from 80 to 90%	28
Dairies scoring from 70 to 80%	37
Dairies scoring from 60 to 70%	13
Dairies scoring from 50 to 60%	none
Dairies scoring from 40 to 50%	2
	82 dairies

A glance at the tabulations of the results of inspection, and analytical summaries of the same, will show that the majority of the dairies were in a fair condition on the dates when inspected.

Certain facts brought out indicate the beneficial effects of the inspection by the Board of Health. The exceptions, however, indicate the necessity for a most rigid system of continuous inspection.

The difficulties in the way of securing a uniformly good municipal milk supply are many. The dairy business is one in which competition is most keen. The requirements of the production of sanitary milk are costly. The general public does not appreciate the cost of good milk and objects to paying what it is worth. Consequently close inspection is required to counteract the evil effects of competition in lowering the quality of the milk supply. Milk occupies a unique place among foods as a carrier of disease, and this fact should justify extensive expenditures for the proper supervision of the conditions under which it is produced.

We have paid particular attention to the number of leucocytes in milk and to the significance of their presence. During the progress of the work numerical determinations of the leucocytes have been made with the milk of each dairy inspected. In many cases two different methods of counting have been used and their accuracy compared. The work has resulted in the accumulation of a vast amount of data, but the time required to arrange the facts in an orderly condition prohibits our undertaking the task at present.

It has been assumed by some workers that the milk of the healthy cow contains few leucocytes and that a large number of leucocytes in milk indicates that milk from an inflamed udder is mixed in the milk. We have found milk of healthy cows to contain high numbers of leucocytes and consequently have been unable to set a standard for the determination of udder disease by counting of leucocytes.

No sanitary inspection of a public milk supply is complete and wholly satisfactory without the application of the tuberculin test to the cattle for the purpose of determining those affected with tuberculosis. The disease can be recognized in but few instances unless the tuberculin test is used. It is a matter of regret, therefore, that we can not present data relating to the extent of this disease among the cattle. The task of collecting such information is so enormous that it could not be included within the scope of this investigation. The tabulations contain reference to the disease, but it should be remembered that such observations are incomplete, and unsupported by the tuberculin test.

The extent of tuberculosis among dairy cattle is a matter of great sanitary importance, for there is very good reason to believe that the disease is transmitted from cattle to man through milk.

Enough is known of the prevalence of tuberculosis among dairy cattle in the San Francisco Bay region to warrant the statement that the disease constitutes the greatest obstacle in the production of sanitary milk for San Francisco.

We mentioned, in the first report, the desirability of collecting information on the matter of the spread of tuberculosis through milk, by inoculating guinea pigs. The progress of the work is delayed on account of difficulty in obtaining guinea pigs, but in a later report we shall present data on the subject.

One hundred and thirty-six (136) samples of milk and cream have been chemically examined since the date of our last report. One hundred and ten (110) of the samples of milk taken at dairies were subjected to complete chemical analysis; that is, the specific gravity, water, fat, casein, and mineral matter were determined in each of the cases. Nineteen (19) samples of cream, also taken at dairies, were tested for the fat content. Six (6) dairy samples of milk tested below 3.2 per cent of fat. The range of fat in the remaining one hundred and four (104) samples was as follows:

Between 3.2% and 3.8% fat	16 samples
Between 3.8% and 4.0% fat	19 samples
4% and above	69 samples

The casein and ash percentages were normal in nearly all of the dairy samples examined.

In the near future we hope to present comprehensive tabulations of the results of the microscopic examinations and of the results of the studies of the composition of milk.

Respectfully submitted.

(Signed) M. E. JAFFA.
A. R. WARD.

DISINFECTION WITH FORMALDEHYD.

Miss Margaret Henderson, assistant in the State Hygienic Laboratory, in addition to routine work, has carried out a series of experiments with formaldehyd disinfection. The details of the work are embodied in a paper by her, forming a part of the present report.

This work will be continued with some brands of solidified formaldehyd on the market in California.

FORMALDEHYD DISINFECTION.

By MARGARET HENDERSON, B.S.

purpose in the laboratory. The house was of the lightest possible construction, shingled outside, and finished inside with rough and loosely fitting boards, and so, to make it approach the tightness found in an ordinary dwelling house, the walls and ceilings were covered with paraffin roofing paper. Paper was pasted over the cracks around the three windows and one of the doors, and the second door was packed with felt strips. Nevertheless, there was some leakage, and a strong smell of formaldehyd was always perceptible in the other rooms of the house.

These tests under laboratory conditions were followed by tests in a room of an ordinary dwelling house, to make sure that the results were not merely laboratory results.

The test objects were prepared after a method suggested by M. J. Rosenau[2] in his paper on formalin disinfection of baggage without apparatus. Squares of filter paper, an eighth of an inch in width, were put
into a sterile Petri dish, four in each dish, and sterilized
was then wet with a drop of a forty-eight-hour bouillor
organism and allowed to dry. These Petri dishes were
disinfecting room, and when everything was in readines
lifted off and set at one side of the dish. At the end
the tops were replaced and the dishes were carried back
tory and the bits of paper dropped each into a tube of
broth was incubated for forty-eight hours or more. At the e

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[1] Evans and Russell. Formaldehyd disinfection. Thirteenth Annual R
Board of Health of Maine.

[2] Rosenau, M. J. Formalin disinfection of baggage without apparatus. Bu
Hyg. Lab. U. S. Public Health and Marine-Hospital Service, Washington, D. C

time the tubes that did not show growth were reinoculated with the same organism and again incubated for forty-eight hours, to prove that the lack of growth was the result of the disinfection and not a fault of the medium or of the organism. Those tubes that showed growth were examined to make sure that the growth was not contamination, but really the organism that was inoculated into them on the paper. Controls were always arranged for each organism. A set of papers in Petri dishes, four to each organism, was inoculated at the same time as those to be disinfected, and allowed to stand on a bench in the well-lighted laboratory during all the time that the exposure was going on. After all the other papers had been put into bouillon these control papers were planted, and the after treatment of all the tubes was the same. In this way the chance that drying, or sunlight, or poor bouillon had led to the death of the organisms was ruled out.

The process was always started, the room was closed and allowed to remain closed for three hours and then opened and aired. When it was desired to make exposures for less than that time, the Petri dishes were put into a shallow drawer, either end of which would make a tight joint with the wall, and which could be opened either into the disinfecting room or into the room next to it. Petri dishes could be put into this drawer in the room next to the disinfecting room and then the drawer could be slid into the disinfecting room, and its end would completely close the hole in the wall. At the end of the desired time the drawer could be pulled out again and its other end would close the hole, and the Petri dishes could be removed, the whole process leading to very little loss of gas.

The Maine State Board of Health (Bulletin No. 75) recommends the use of a quart of formalin and thirteen ounces of potassium permanganate to a thousand cubic feet, with an exposure of three hours. The first series of experiments was done with this amount of formalin and with times varying from one hour to three hours. The organisms used were *Bact. anthracis*, *B. subtilis*, *M. pyogenes aureus*, *B. typhosus*, *B. prodigiosus*, and *Ps. pyocyanea*. Table 1 shows the results of this test.

TABLE 1.—*One quart of formalin and 13 ounces of potassium permanganate per 1,000 cubic feet in laboratory room. Space, 348 cubic feet. Surface exposure.*

Culture.	Time.	Test.		Control.		Reinoculation.	
		Gro'th	No Gro'th	Gro'th	No Gro'th	Gro'th	No Gro'th
Bact. anthracis	1 hour	0	4	4	0	3	1
B. subtilis	1 hour	0	4	4	0	3	1
M. pyogenes aureus	1 hour	0	4	4	0	4	0
Ps. pyocyanea	1 hour	1	3	4	0	3	0
B. typhosus	1 hour	0	4	4	0	4	0
Bact. anthracis	1½ hours	0	4	4	0	4	0
B. subtilis	1½ hours	0	4	4	0	3	0
M. pyogenes aureus	1½ hours	0	4	4	0	4	0
Ps. pyocyanea	1½ hours	0	4	4	0	4	0
B. typhosus	1½ hours	0	4	4	0	4	0
Bact. anthracis	2 hours	0	3	4	0	0	3
B. subtilis	2 hours	0	4	4	0	3	1
M. pyogenes aureus	2 hours	0	4	4	0	4	0
Ps. pyocyanea	2 hours	0	4	4	0	3	0
B. typhosus	2 hours	0	4	4	0	4	0

TABLE 1.—*One quart of formalin and 13 ounces of potassium permanganate per 1,000 cubic feet in laboratory room. Space, 348 cubic feet. Surface exposure.—Continued.*

Culture.	Time.	Test.		Control.		Reinoculation.	
		Gro'th	No Gro'th	Gro'th	No Gro'th	Gro'th	No Gro'th
Bact. anthracis	2½ hours	0	4	4	0	3	1
B. subtilis	2½ hours	0	4	4	0	4	0
M. pyogenes aureus	2½ hours	0	4	4	0	3	1
Ps. pyocyanea	2½ hours	0	3	4	0	3	0
B. typhosus	2½ hours	0	4	4	0	4	0
Bact. anthracis	3 hours	0	4	4	0	4	0
B. subtilis	3 hours	0	4	4	0	4	0
M. pyogenes aureus	3 hours	0	4	4	0	4	0
Ps. pyocyanea	3 hours	0	3	4	0	4	0
B. typhosus	3 hours	0	3	4	0	3	0

Ninety-five of the ninety-six cultures exposed were sterilized; nineteen in one hour, and twenty in one and one half hours; but not all of these tubes showed growth after reinoculation. This was probably due to the fact that the papers on which the cultures were exposed were very large, one inch by one fourth of an inch, and consequently such a large amount of formaldehyd was introduced into the bouillon that it ceased to be a good culture medium. In subsequent experiments the size of the paper was reduced to one eighth of an inch, and the reinoculations always showed growth thereafter.

The formalin used in this experiment was some that had been in the laboratory for months and showed a strength of 33.7 per cent of formaldehyd by the method recommended and described by Rosenau.[3]

The second test was made in the same room, with the same amount of chemicals and for three hours, and was an exact repetition of the first, except that the papers used were smaller. Its results are shown in Table 2. Of one hundred and forty-three cultures exposed, none showed growth after three hours.

TABLE 2.—*One quart of formalin and 13 ounces of potassium permanganate per 1,000 cubic feet in laboratory room. Space, 348 cubic feet. Surface exposure.*

Culture.	Time.	Test.		Control.		Reinoculation.	
		Gro'th	No Gro'th	Gro'th	No Gro'th	Gro'th	No Gro'th
Bact. anthracis	1 hour	0	4	4	0	3	0
B. subtilis	1 hour	0	4	4	0	4	0
Bact. diphtheriæ	1 hour	0	4	2	2	4	0
M. pyogenes aureus	1 hour	0	4	4	0	3	1
Ps. pyocyanea	1 hour	0	4	4	0	4	0
B. typhosus	1 hour	0	3	4	0	3	0
Bact. anthracis	1½ hours	0	4	4	0	4	0
B. subtilis	1½ hours	0	4	4	0	4	0
Bact. diphtheriæ	1½ hours	0	4	2	2	4	0
M. pyogenes aureus	1½ hours	0	4	4	0	4	0
Ps. pyocyanea	1½ hours	0	4	4	0	4	0
B. typhosus	1½ hours	0	4	4	0	4	0

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[3] Rosenau, M. J., *loc. cit.*

TABLE 2.—*One quart of formalin and 13 ounces of potassium permanganate per 1,000 cubic feet in laboratory room. Space, 348 cubic feet. Surface exposure.—Continued.*

Culture.	Time.	Test.		Control.		Reinoculation.	
		Gro'th	No Gro'th	Gro'th	No Gro'th	Gro'th	No Gro'th
Bact. anthracis	2 hours	0	4	4	0	4	0
B. subtilis	2 hours	0	4	4	0	4	0
Bact. diphtheriæ	2 hours	0	4	2	2	4	0
M. pyogenes aureus	2 hours	0	4	4	0	3	0
Ps. pyocyanea	2 hours	0	4	4	0	4	0
B. typhosus	2 hours	0	4	4	0	4	0
Bact. anthracis	2½ hours	0	4	4	0	4	0
B. subtilis	2½ hours	0	4	4	0	3	0
Bact. diphtheriæ	2½ hours	0	4	2	2	4	0
M. pyogenes aureus	2½ hours	0	4	4	0	3	1
Ps. pyocyanea	2½ hours	0	4	4	0	4	0
B. typhosus	2½ hours	0	4	4	0	4	0
Bact. anthracis	3 hours	0	8	4	0	8	0
B. subtilis	3 hours	0	8	4	0	8	0
Bact. diphtheriæ	3 hours	0	8	2	2	7	0
M. pyogenes aureus	3 hours	0	8	4	0	5	1
Ps. pyocyanea	3 hours	0	8	4	0	8	0
B. typhosus	3 hours	0	8	4	0	8	0

The third test was made under the same conditions to try the penetrating power of the formaldehyd gas. Cultures were exposed as before on paper in Petri dishes, but the Petri dishes were put between the folds of a sterilized woolen blanket and a sterilized sheet, and on the floor under a piece of carpet and into a closed drawer. The results of this test are shown in Table 3.

TABLE 3.—*One quart of formalin and 13 ounces of potassium permanganate per 1,000 cubic feet in laboratory room. Space, 348 cubic feet. Time, 3 hours.*

Culture.	Test.		Control.		Exposed under
	Gro'th	No Gro'th	Gro'th	No Gro'th	
Bact. anthracis	0	4	3	1	1 layer of blanket.
B. subtilis	0	4	4	0	
Bact. diphtheriæ	0	4	4	0	
M. pyogenes aureus	0	4	4	0	
Ps. pyocyanea	0	4	4	0	
B. typhosus	0	4	4	0	
Bact. anthracis	0	4	3	1	2 layers of blanket.
B. subtilis	4	0	4	0	
Bact. diphtheriæ	0	4	4	0	
M. pyogenes aureus	3	1	4	0	
Ps. pyocyanea	0	4	4	0	
B. typhosus	0	4	4	0	
Bact. anthracis	4	0	3	1	3 layers of blanket.
B. subtilis	3	0	4	0	
Bact. diphtheriæ	0	4	4	0	
M. pyogenes aureus	2	2	4	0	
Ps. pyocyanea	4	0	4	0	
B. typhosus	0	4	4	0	

TABLE 3.—*One quart of formalin and 13 ounces of potassium permanganate per 1,000 cubic feet in laboratory room. Space, 348 cubic feet. Time, 3 hours.—Continued.*

Culture.	Test.		Control.		Exposed under
	Gro'th	No Grot'h	Gro'th	No Gro'th	
Bact. anthracis	4	0	3	1	4 layers of blanket.
B. subtilis	4	0	4	0	
Bact. diphtheriæ	0	4	4	0	
M. pyogenes aureus	2	1	4	0	
Ps. pyocyanea	4	0	4	0	
B. typhosus	2	2	4	0	
Bact. anthracis	4	0	3	1	6 layers of blanket.
B. subtilis	4	0	4	0	
Bact. diphtheriæ	4	0	4	0	
M. pyogenes aureus	3	0	4	0	
Ps. pyocyanea	4	0	4	0	
B. typhosus	3	1	4	0	
Bact. anthracis	4	0	4	0	8 layers of blanket.
B. subtilis	4	0	4	0	
Bact. diphtheriæ	3	0	4	0	
M. pyogenes aureus	3	0	4	0	
Ps. pyocyanea	4	0	4	0	
B. typhosus	3	0	4	0	
Bact. anthracis	4	0	3	1	10 layers of blanket.
B. subtilis	4	0	4	0	
Bact. diphtheriæ	4	0	4	0	
M. pyogenes aureus	4	0	4	0	
Ps. pyocyanea	4	0	4	0	
B. typhosus	4	0	4	0	
Bact. anthracis	0	4	3	1	1 layer of sheet.
B. subtilis	0	4	4	0	
Bact. diphtheriæ	0	4	4	0	
M. pyogenes aureus	0	4	4	0	
Ps. pyocyanea	0	4	3	1	
B. typhosus	0	4	4	0	
Bact. anthracis	0	4	3	1	2 layers of sheet.
B. subtilis	0	4	4	0	
Bact. diphtheriæ	0	4	4	0	
M. pyogenes aureus	0	4	4	0	
Ps. pyocyanea	0	4	3	1	
B. typhosus	0	4	4	0	
Bact. anthracis	4	0	3	1	3 layers of sheet.
B. subtilis	0	4	4	0	
Bact. diphtheriæ	0	4	4	0	
M. pyocyenes aureus	0	4	4	0	
Ps. pyocyanea	0	4	3	1	
B. typhosus	0	4	4	0	
Bact. anthracis	0	4	3	1	4 layers of sheet.
B. subtilis	2	2	4	0	
Bact. diphtheriæ	0	4	4	0	
M. pyogenes aureus	0	3	4	0	
Ps. pyocyanea	1	7	3	1	
B. typhosus	0	4	4	0	
Bact. anthracis	4	0	3	1	6 layers of sheet.
B. subtilis	4	0	4	0	
M. pyogenes aureus	0	4	4	0	
Ps. pyocyanea	1	3	3	1	
Bact. diphtheriæ	0	4	4	0	
B. typhosus	0	4	4	0	

TABLE 3.—*One quart of formalin and 18 ounces of potassium permanganate per 1,000 cubic feet in laboratory room. Space, 348 cubic feet. Time, 3 hours.—Continued.*

Culture.	Test.		Control.		Exposed Under.
	Gro'th	No Gro'th	Gro'th	No Gro'th	
Bact. anthracis	0	4	4	0	8 layers of sheet.
B. subtilis	4	0	4	0	
Bact. diphtheriæ	0	4	4	0	
M. pyogenes aureus	1	3	4	0	
Ps. pyocyanea	3	1	3	1	
B. typhosus	0	4	4	0	
Bact. anthracis	4	0	3	1	10 layers of sheet.
B. subtilis	4	0	4	0	
Bact. diphtheriæ	0	3	4	0	
M. pyogenes aureus	4	0	4	0	
Ps. pyocyanea	1	3	3	1	
B. typhosus	0	4	4	0	
Bact. anthracis	3	0	3	1	1 layer of carpet.
B. subtilis	4	0	4	0	
Bact. diphtheriæ	2	2	4	0	
M. pyogenes aureus	0	4	4	0	
B. typhosus	0	4*	4	0	
Ps. pyocyanea	0	4	4	0	
Bact. anthracis	0	3	4	0	In a closed drawer.
B. subtilis	0	4	4	0	
Bact. diphtheriæ	0	4	4	0	
B. typhosus	0	4	4	0	
M. pyogenes aureus	0	4	4	0	
Ps. pyocyanea	0	4	4	0	

*1 contaminated.

All of the cultures (24) were killed through one layer of blanket, all but the spore bearers and *M. pyogenes aureus* through two layers, but only such easily killed ones as *Bact. diphtheriæ* and *B. typhosus* through three layers, and there was no disinfecting action at all through more than four layers. Through the sheet, penetration was somewhat better. Sterilization was complete through two layers, and only the spore bearers survived when protected by four layers of sheeting. Under one layer of carpet the spore bearers were not harmed at all, and two out of the sixteen cultures of non-spore bearers survived. The inside of the closed drawer was disinfected, even though it was a dead space, and there was no artificial means of moving the air about.

Rosenau,[4] in his bulletin, calls attention to the fact that the formalin may inhibit the growth of organisms without actually killing them. He made it a practice to neutralize the formaldehyd with ammonia before planting the papers in bouillon. To make sure that no such error was creeping into the results of these tests, thirty-nine cultures were exposed freely to the action of the formaldehyd for three hours. At the end of that time twenty-two of these papers were exposed for a few seconds to the action of ammonia gas and then all of them were planted in bouillon and incubated. There was no growth in any of the thirty-nine tubes.

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[4] Rosenau, M. J., *loc. sit.*

TABLE 4.—*One quart of formalin and 13 ounces of potassium permanganate per 1,000 cubic feet in laboratory room. Space, 348 cubic feet. Formalin neutralized by ammonia. Time, 3 hours.*

Culture.	Exposed to Ammonia.		Not Exposed to Ammonia.		Control.	
	Gro'th	No Gro'th	Gro'th	No Gro'th	Gro'th	No Gro'th
Bact. anthracis	0	4	0	3	3	1
B. subtilis	0	4	0	3	4	0
Bact. diphtheriæ	0	4	0	2	4	0
M. pyogenes aureus	0	2	0	3	4	0
Ps. pyocyanea	0	4	0	4	4	0
B. typhosus	0	4	0	2	4	0

Next it was decided to see whether this method of disinfecting would be equally effectual in an ordinary dwelling house. The room used was a living room containing all of its furniture. It had two doors and three windows, on two sides of the room. These windows were of the loose-fitting French kind so common in California houses, and the only attempt that was made to make the room less leaky was to stuff towels into the cracks through which came a very perceptible draft, and into the crack under the outer door. Cultures were exposed in various parts of the room, and at various distances from the floor, in order to make sure that the gas penetrated to every corner of the room. One set of Petri dishes was placed on a ledge of the very leaky window, one was put under the carpet on the floor, one under two and one under four layers of heavy woolen blanket, and one under a loose pile of magazines and papers. The results of this test are shown in Table 5.

TABLE 5.—*One quart of formalin and 13 ounces of potassium permanganate per 1,000 cubic feet in room of dwelling house. Space, 1,686 cubic feet. Time, 3 hours.*

Culture.	Test.		Control.		Reinoculation-		Conditions of Exposure.
	Gro'th	No Gro'th	Gro'th	No Gro'th	Gro'th	No Gro'th	
B. typhosus	0	3	3	1	4	0	On a table in the middle of room.
Bact. anthracis	0	3	4	0	3	0	
M. pyogenes aureus	0	4	4	0	4	0	
B. subtilis	0	4	4	0	4	0	
Mixed throat culture	0	4	4	0	--	--	
Ps. pyocyanea	0	3	4	0	3	0	
B. subtilis	0	3	4	0	4	0	On the floor in a corner between two windows.
Bact. anthracis	0	4	4	0	4	0	
Mixed throat culture	0	4	4	0	--	--	
M. pyogenes aureus	0	4	4	0	4	0	
Ps. pyocyanea	0	4	4	0	4	0	
B. typhosus	0	4	3	1	4	0	
Bact. anthracis	0	4	4	0	4	0	On bookshelves in corner between two windows.
B. subtilis	0	3	4	0	3	0	
Mixed throat culture	0	4	4	0	--	--	
M. pyogenes aureus	0	4	4	0	4	0	
Ps. pyocyanea	0	4	4	0	4	0	
B. typhosus	0	4	3	1	4	0	
Bact. anthracis	0	4	4	0	4	0	On a ledge above the window.
B. subtilis	0	4	4	0	4	0	
Mixed throat culture	0	4	4	0	--	--	
M. pyogenes aureus	0	4	4	0	4	0	
B. typhosus	0	4	3	1	4	0	

TABLE 5.—*One quart of formalin and 13 ounces of potassium permanganate per 1,000 cubic feet in room of dwelling house. Space, 1,686 cubic feet. Time, 3 hours.—Continued.*

Culture.	Test.		Control.		Reinoculation.		Conditions of Exposure.
	Gro'th	No Gro'th	Gro'th	No Gro'th	Gro'th	No Gro'th	
Bact. anthracis	1	0	4	0	--	--	On sill of a leaky window.
B. subtilis	0	4	4	0	4	0	
Mixed throat culture	0	4	4	0	--	--	
M. pyogenes aureus	0	4	4	0	4	0	
Ps. pyocyanea	0	7	4	0	7	0	
B. typhosus	0	5	3	1	5	0	
Bact. anthracis	0	4	4	0	4	0	On book shelves about four feet from floor.
B. subtilis	0	4	4	0	4	0	
Mixed throat culture	0	4	4	0	--	--	
Ps. pyocyanea	0	4	4	0	4	0	
B. typhosus	0	7	3	1	7	0	
Bact. anthracis	0	4	4	0	4	0	Under 1 layer of a felt table cover that had holes in it.
B. subtilis	0	4	4	0	4	0	
Mixed throat culture	0	4	4	0	--	--	
M. pyogenes aureus	0	4	4	0	4	0	
Ps. pyocyanea	0	4	4	0	3	1	
B. typhosus	0	5	3	1	5	0	
Bact. anthracis	0	4	4	0	4	0	Under 2 layers of a heavy wool blanket.
B. subtilis	0	3	4	0	3	0	
Mixed throat culture	1	3	4	0	--	--	
M. pyogenes aureus	1	3	4	0	3	0	
Ps. pyocyanea	0	4	4	0	4	0	
B. typhosus	0	4	3	1	4	0	
Bact. anthracis	4	0	4	0	--	--	Under 4 layers of a heavy wool blanket.
B. subtilis	4	0	4	0	2	0	
Mixed throat culture	1	3	4	0	--	--	
M. pyogenes aureus	1	3	4	0	2	0	
Ps. pyocyanea	4	0	4	0	--	--	
B. typhosus	0	3	3	1	--	--	
Bact. anthracis	4	0	4	0	--	--	Under 1 layer of carpet on the floor.
B. subtilis	4	0	3	0	--	--	
Mixed throat culture	2	2	4	0	--	--	
M. pyogenes aureus	0	3	4	0	3	0	
Ps. pyocyanea	3	1	4	0	1	0	
B. typhosus	0	4	3	1	4	0	
Bact. anthracis	3	0	4	0	--	--	Under a loose pile of papers and magazines on the floor.
B. subtilis	0	2	4	0	2	0	
Mixed throat culture	0	4	4	0	--	--	
M. pyogenes aureus	0	4	4	0	3	0	
Ps. pyocyanea	2	2	4	0	2	0	
B. typhosus	1	3	3	0	2	0	

Of one hundred and fifty-nine cultures exposed to the gas with nothing over them, one hundred and fifty-eight were killed. The one that grew was an anthrax culture exposed on the ledge of the leaky window. Disinfection was incomplete under the carpet and in the pile of papers; and the formaldehyd did not penetrate the folds of blanket any better than in the preceding experiment. Evidently in practical disinfection it would be necessary to take up the carpet, and to spread out all bedding and clothes. At the end of the three hours the room was allowed to air, but it was found, even on the next day, impossible to occupy it with any comfort. At the end of that time flat dishes of ammonia were set around in it, and in an hour or so the smell of formaldehyd had practically disappeared.

The results of the disinfection with this amount of formalin had been so uniformly satisfactory that it was decided to see whether it could not be cut down without impairing the efficiency of the process. It was decided to try the effect of one pint of formalin and six and one-half ounces of potassium permanganate to a thousand cubic feet of space. Two tests with this amount were made in the laboratory room (Tables 6 and 7), and one in the room of a house. This was a room of ordinarily tight finish, with two doors and two windows. As in the other room, no attempt was made to seal up cracks, nor to make it air tight in any way, except that the keyhole was plugged. The smell of formaldehyd was very strong in all the other rooms on the same floor. The results of using this reduced amount of formalin are shown in Tables 6, 7, and 8.

TABLE 6.—*One pint of formalin and 6½ ounces of potassium permanganate per 1,000 cubic feet in laboratory room. Space, 348 cubic feet.*

Culture.	Time.	Test.		Reinoculation.		Conditions of Exposure.
		Gro'th	No Gro'th	Gro'th	No Gro'th	
Bact. anthracis	1 hour	0	4	3	0	On surface.
B. subtilis	1 hour	0	4	4	0	
M. pyogenes aureus	1 hour	0	4	4	0	
Ps. pyocyanea	1 hour	1	3	3	0	
B. typhosus	1 hour	0	4	4	0	
B. prodigiosus	1 hour	0	2	2	0	
Bact. anthracis	1½ hours	0	4	4	0	On surface.
B. subtilis	1½ hours	0	4	4	0	
M. pyogenes aureus	1½ hours	0	4	4	0	
Ps. pyocyanea	1½ hours	0	3	3	0	
B. typhosus	1½ hours	0	3	3	0	
B. prodigiosus	1½ hours	0	4	4	0	
Bact. anthracis	2 hours	0	4	4	0	On surface.
B. subtilis	2 hours	0	4	4	0	
M. pyogenes aureus	2 hours	0	4	4	0	
Ps. pyocyanea	2 hours	1	3	3	0	
B. typhosus	2 hours	0	4	4	0	
B. prodigiosus	2 hours	0	3	3	0	
Bact. anthracis	2½ hours	0	4	4	0	On surface.
B. subtilis	2½ hours	0	4	4	0	
M. pyogenes aureus	2½ hours	0	3	3	0	
Ps. pyocyanea	2½ hours	0	4	4	0	
B. typhosus	2½ hours	0	4	4	0	
B. prodigiosus	2½ hours	0	4	4	0	
Bact. anthracis	3 hours	0	4	4	0	On surface.
B. subtilis	3 hours	0	4	4	0	
M. pyogenes aureus	3 hours	0	4	4	0	
Ps. pyocyanea	3 hours	0	4	4	0	
B. prodigiosus	3 hours	0	4	3	0	
B. typhosus	3 hours	0	3	3	0	
Bact. anthracis	3 hours	0	4	3	0	Under 1 layer of sheet.
B. subtilis	3 hours	1	3	4	0	
M. pyogenes aureus	3 hours	0	3	4	0	
Ps. pyocyanea	3 hours	1	3	2	0	
B. typhosus	3 hours	0	4	4	0	
B. prodigiosus	3 hours	0	4	4	0	

TABLE 6.—*One pint of formalin and 6½ ounces of potassium permanganate per 1,000 cubic feet in laboratory room. Space, 348 cubic feet.—Continued.*

Culture.	Time.	Test.		Reinoculation.		Conditions of Exposure.
		Gro'th	No Gro'th	Gro'th	No Gro'th	
Bact. anthracis	3 hours	0	4	2	0	Under 2 layers of sheet.
B. subtilis	3 hours	0	4	4	0	
M. pyogenes aureus	3 hours	0	4	4	0	
Ps. pyocyanea	3 hours	0	4	4	0	
B. typhosus	3 hours	0	4	4	0	
B. prodigiosus	3 hours	0	4	4	0	
Bact. anthracis	3 hours	0	3	3	0	Under 3 layers of sheet.
B. subtilis	3 hours	0	4	3	0	
M. pyogenes aureus	3 hours	0	4	3	0	
Ps. pyocyanea	3 hours	0	4	4	0	
B. typhosus	3 hours	0	4	3	0	
B. prodigiosus	3 hours	0	3	3	0	
Bact. anthracis	3 hours	0	4	4	0	Under 4 layers of sheet.
B. subtilis	3 hours	1	3	3	0	
M. pyogenes aureus	3 hours	0	4	4	0	
Ps. pyocyanea	3 hours	0	4	4	0	
B. typhosus	3 hours	0	4	3	0	
B. prodigiosus	3 hours	0	4	4	0	
Bact. anthracis	3 hours	0	4	3	0	Under 2 layers of blanket.
B. typhosus	3 hours	0	4	4	0	
M. pyogenes aureus	3 hours	0	4	4	0	
Ps. pyocyanea	3 hours	1	3	3	0	
B. prodigiosus	3 hours	0	4	4	0	

TABLE 7.—*One pint of formalin and 6½ ounces of potassium permanganate per 1,000 cubic feet in laboratory room. Temperature, 22° C. Weather windy.*

Culture.	Time.	Test.		Control.		Reinoculation.		Conditions of Exposure.
		Gro'th	No Gro'th	Gro'th	No Gro'th	Gro'th	No Gro'th	
Bact. anthracis	1 hour	0	3	3	0	--	--	On surface.
B. subtilis	1 hour	0	4	4	0	4	0	
M. pyogenes aureus	1 hour	0	4	4	0	4	0	
Ps. pyocyanea	1 hour	0	4	4	0	--	--	
B. typhosus	1 hour	0	4	4	0	--	--	
B. prodigiosus	1 hour	0	4	4	0	4	0	
Bact. anthracis	1½ hours	0	4	3	0	4	0	On surface.
B. subtilis	1½ hours	0	4	4	0	4	0	
M. pyogenes aureus	1½ hours	0	4	4	0	4	0	
Ps. pyocyanea	1½ hours	0	4	4	0	4	0	
B. typhosus	1½ hours	0	3	4	0	3	0	
B. prodigiosus	1½ hours	0	4	4	0	4	0	
Bact. anthracis	2 hours	0	4	3	0	3	0	On surface.
B. subtilis	2 hours	0	4	4	0	4	0	
M. pyogenes aureus	2 hours	0	4	4	0	--	--	
Ps. pyocyanea	2 hours	0	4	4	0	4	0	
B. typhosus	2 hours	0	4	4	0	4	0	
B. prodigiosus	2 hours	0	4	4	0	--	--	

TABLE 7.—*One pint of formalin and 6½ ounces of potassium permanganate per 1,000 cubic feet in laboratory room. Temperature, 22° C. Weather windy.—Continued.*

Culture.	Time.	Test.		Control.		Reinoculation.		Conditions of Exposure.
		Gro'th	No Gro'th	Gro'th	No Gro'th	Gro'th	No Gro'th	
Bact. anthracis	2½ hours	0	4	4	0	--	--	On surface.
B. subtilis	2½ hours	0	4	4	0	3	0	
M. pyogenes aureus	2½ hours	0	4	4	0	--	--	
Ps. pyocyanea	2½ hours	0	3	3	0	3	0	
B. typhosus	2½ hours	0	4	4	0	--	--	
B. prodigiosus	2½ hours	0	4	4	0	3	0	
Bact. anthracis	3 hours	0	4	4	0	3	0	On surface.
B. subtilis	3 hours	0	4	4	0	4	0	
M. pyogenes aureus	3 hours	0	4	4	0	--	--	
Ps. pyocyanea	3 hours	0	4	4	0	--	--	
B. typhosus	3 hours	0	4	4	0	4	0	
B. prodigiosus	3 hours	0	4	4	0	4	0	
Bact. anthracis	3 hours	0	4	3	0	4	0	Under 1 layer of blanket.
M. pyogenes aureus	3 hours	0	4	4	0	2	2	
B. typhosus	3 hours	0	4	4	0	4	0	
B. prodigiosus	3 hours	0	4	4	0	4	0	
Bact. anthracis	3 hours	1	3	3	0	3	0	Under 2 layers of blanket.
M. pyogenes aureus	3 hours	0	4	4	0	1	2	
Ps. pyocyanea	3 hours	1	3	4	0	2	0	
B. typhosus	3 hours	0	4	4	0	4	0	
B. prodigiosus	3 hours	0	4	4	0	4	0	
Bact. anthracis	3 hours	4	0	4	0	--	--	Under 3 layers of blanket.
B. subtilis	3 hours	3	1	4	0	--	--	
M. pyogenes aureus	3 hours	0	2	4	0	--	--	
Ps. pyocyanea	3 hours	4	0	4	0	--	--	
B. typhosus	3 hours	0	4	4	0	--	--	
B. prodigiosus	3 hours	0	4	4	0	--	--	
Bact. anthracis	3 hours	3	0	4	0	--	--	Under 4 layers of blanket.
Ps. pyocyanea	3 hours	4	0	4	0	--	--	
Bact. anthracis	3 hours	0	8	3	0	--	--	Under 1 layer of sheet.
M. pyogenes aureus	3 hours	0	4	4	0	--	--	
Ps. pyocyanea	3 hours	0	4	4	0	4	0	
B. typhosus	3 hours	0	6	4	0	--	--	
B. prodigiosus	3 hours	0	4	4	0	--	--	
Bact. anthracis	3 hours	0	4	3	0	--	--	Under 2 layers of sheet.
M. pyogenes aureus	3 hours	0	4	4	0	--	--	
Ps. pyocyanea	3 hours	0	4	4	0	-	--	
B. typhosus	3 hours	0	4	4	0	--	--	
B. prodigiosus	3 hours	0	4	4	0	--	--	
Bact. anthracis	3 hours	0	3	3	0	--	--	Under 3 layers of sheet.
M. pyogenes aureus	3 hours	0	4	4	0	--	--	
Ps. pyocyanea	3 hours	0	4	4	0	3	0	
B. typhosus	3 hours	0	4	4	0	--	--	
B. prodigiosus	3 hours	0	4	4	0	--	--	
Bact. anthracis	3 hours	0	4	4	0	--	--	Under 4 layers of sheet.
Ps. pyocyanea	3 hours	0	4	4	0	--	--	
M. pyogenes aureus	3 hours	0	4	4	0	--	--	
B. typhosus	3 hours	0	4	4	0	4	0	
B. prodigiosus	3 hours	0	4	4	0	4	0	

TABLE 8.—*One pint of formalin and 6½ ounces of potassium permanganate per 1,000 cubic feet in dwelling house. Space, 979 cubic feet. Time, 3 hours. Temperature, 20° C.*

Culture.	Test.		Control.		Conditions of Exposure.
	Gro'th	No Gro'th	Gro'th	No Gro'th	
Bact. anthracis	0	4	3	0	Beside a window on level of window sill.
B. subtilis	0	4	4	0	
M. pyogenes aureus	0	4	4	0	
Ps. pyocanea	0	4	4	0	
B. typhosus	0	4	4	0	
B. prodigiosus	0	4	4	0	
Bact. anthracis.	0	4	4	0	In a partially open drawer.
B subtilis	0	8	4	0	
M. pyogenes aureus	0	3	4	0	
Ps. pyocyanea	0	4	4	0	
B. typhosus	0	4	4	0	
B. prodigiosus	0	4	4	0	
Bact. anthracis	0	3	3	0	On the floor in a corner.
B. subtilis	0	4	4	0	
M. pyogenes aureus	0	4	4	0	
Ps. pyocyanea	0	3	4	0	
Bact. anthracis	0	4	4	0	On a table.
B. subtilis	0	4	4	0	
M. pyogenes aureus	0	4	4	0	
Ps. pyocyanea	0	4	4	0	
B. typhosus	0	4	4	0	
B. prodigiosus	0	4	4	0	
Bact. anthracis	0	4	3	0	On a bed, under one layer of blanket.
B. subtilis	3	1	4	0	
M. pyogenes aureus	0	4	4	0	
Ps. pyocyanea	0	4	4	0	
B. typhosus	0	4	4	0	
B. prodigiosus	0	4	4	0	
Bact. anthracis	0	4	4	0	On a bed, under two layers of blanket.
B. subtilis	0	4	4	0	
M. pyogenes aureus	1	3	4	0	
B. typhosus	1	3	4	0	
B. prodigiosus	0	4	4	0	
	0	4	4	0	
Bact. anthracis					
B. subtilis	0	4	4	0	Under a blank't thrown over the back of a chiffonier.
M. pyogenes aureus	0	4	4	0	
Ps. pyocyanea	0	4	4	0	
B. typhosus	0	4	4	0	
B. prodigiosus	0	4	4	0	
B. typhosus	1*	3	4	0	
Bact. anthracis	0	4	3	0	On floor, under one layer of blanket.
M. pyogenes aureus	0	4	4	0	
Ps. pyocyanea	0	4	4	0	
B. typhosus	0	4	4	0	
B. prodigiosus	0	4	4	0	
B. subtilis	1	3	4	0	

* Contamination.

For free exposures, sterilization was complete for three hundred and seventeen out of three hundred and nineteen cultures. The two that grew were two cultures of *Ps. pyocyanea* exposed, one for one hour and one for two hours. Sterilization was complete through four layers of sheet, except for one case out of a total of forty-three cultures exposed.

Of thirty-seven cultures exposed under one layer of blankets, thirty-four were killed, the other three being cultures of *Bact. anthracis.* Under two layers of blanket fifty-five cultures were exposed, and five grew afterwards.

As a result of this set of experiments, it would seem that one pint of formalin and six and one half ounces of potassium permanganate per one thousand cubic feet of space is certainly a safe receipt for disinfection under the conditions which are to be met with here. How much of a margin of safety this allows has not been determined by this limited series of experiments, except that one hour's exposure seems to have given as complete disinfection as three hours. In all cases it is necessary to spread out, or hang up, blankets and clothing and to take up the carpets.

These experiments were carried on in Berkeley, in the summer time, from June to September, when the weather is cool and very damp. There is some doubt whether the same tests repeated in the hot, dry interior of the State would result in the same way, so a further course of experiments has been planned to settle this point, and to determine the best amount of formalin for a dry climate.

We have also planned to do some work to determine the efficiency of disinfection with the various forms of solidified formaldehyd, so commonly sold by druggists for that purpose.

THE NUMERICAL DETERMINATION OF LEUCOCYTES IN MILK.

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Mammitis in the cow, commonly called garget, is a matter of importance in its relation to the purity and wholesomeness of market milk. The rôle of streptococci as the cause of mammitis in the cow, and the probable relation of this affection to digestive disorders in infants, are both of vital interest in this connection.

Mammitis frequently appears without specific symptoms. Sometimes white caseous masses are noticed in otherwise normal milk, and often the milker first becomes aware of the existence of udder inflammation by noticing the masses of casein lodged on the milk-strainer. Pus is always present in the milk of cows so affected, but it is not always present in sufficient amount to attract attention. The insidious onset of mammitis renders it exceedingly difficult for even the most conscientious milk-dealer to exclude infected milk from the product sold by him. Slight catarrhal conditions of the udder mucosa may readily pass unnoticed.

The prevalence of mammitis among cows, and the difficulty of avoiding the marketing of milk infected with streptococci, have led to the development of microscopic tests of milk for the detection of mammitis.

Stokes[1] devised a microscopic examination of milk for pus cells and streptococci as a means of detecting the presence of mammitis among cows supplying the milk. Centrifugal sediment from 10 cubic centimeters of milk was strained and examined with a one-twelfth inch oil immersion lens. He regarded the presence in milk of an individual cow, of five cells per field of the oil immersion lens, as justification for excluding the animal from the herd.

Bergey[2] modified Stokes's method and made extensive examinations of the milk of individual cows. Parallel bacteriological examinations for both species and numbers supplemented his examinations for cells. He observes:

> Cells can be demonstrated in the milk of practically all cows, and hence the number of these cells present in milk becomes a matter of importance. It is believed that the occurrence of ten cells per field of the one-twelfth immersion lens indicates the presence of pus in milk, especially if the cells occur in masses. The presence of pus in milk denotes an inflammatory reaction within the udder, from the fact that the pus is always associated with pyogenic organisms.
>
> Streptococci were found in nearly all the samples of milk derived from cows which showed the presence of pus. These bacteria are usually the cause of catarrhal mammitis.

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[1] Stokes. The microscopic examination of milk. Annual Report of the Health Department of the City of Baltimore, 1897, p. 105.

[2] Bergey. The source and nature of bacteria in milk. Bulletin No. 125, Department of Agriculture, Commonwealth of Pennsylvania.

> Streptococci and pus cells were also encountered in samples of milk derived from cows in which no inflammation of the udder could be discovered. This occurrence is probably due to the fact that the disease was not very active, or that it had persisted for a considerable time and become chronic.

Stewart[3], of the Philadelphia Bureau of Health, further modified the method so that it was practicable to use it for the examination of large numbers of samples of mixed herd milk. Stewart describes the apparatus and method as follows:

> This apparatus consists of a circular pan about 12 inches in diameter, and ⅝ inch deep, containing twenty small glass tubes. The tubes contain 1 c.c. of milk and are filled by means of a small bulb similar to that ordinarily used on medicine droppers. The end of the tube is closed by a small rubber stopper, and the tubes are held in the pan by spring clamps. This pan is fitted upon the ordinary Boekel water centrifuge and covered with a lid which is held down by a thumbscrew. The pan covered in this way furnishes a surface of very slight resistance to the atmosphere during its revolution, somewhat on the principle of a child's top.
>
> By the old method the arms of the centrifuge containing the milk encountered so much resistance in their revolution that the speed with 15 pounds water pressure was not more than 1,200 revolutions per minute, while the speed obtained with the new apparatus is from 2,500 to 3,000 revolutions per minute with 15 pounds pressure. This rapid speed causes sedimentation to occur in less than five minutes. When this is completed the centrifuge pan can be lifted from the motor and the per cent of cream measured by a graduated scale marked upon the tube. The heavier matter, as the insoluble dirt, pus cells and bacteria, is thrown to the peripheral end of the tube, where it adheres to the rubber cork in the lumen of the tube. To examine this sediment, the cork is carefully removed and a spread made by rubbing the cork containing the sediment over an area of a square centimeter on a 3-inch by 6-inch glass slide. The proper area of the smear is obtained by placing underneath the slide a scale of circles having an area of a square centimeter. After the smears are dried in air without fixation of heat, the preparation is stained with the Jenner blood stain for two minutes, keeping the stain in constant motion. The excess of stain is washed off in water, and the preparation is dried in air. By this blood-staining method the pus and blood cells are stained perfectly and the ordinary microörganisms take the blue stain well.
>
> The stained specimens are examined with a one-twelfth Leitz objective and a No. 3 eye-piece. The character of the bacteria is noted, and the average number of pus cells per field is counted. This average number is multiplied by 4,400, since there are about 4,400 fields to a square centimeter, as estimated by the stage micrometer. This result is approximately the number of pus cells per cubic centimeter of milk.

When a sample of milk showed over 100,000 cells per cubic centimeter, or showed "streptococci and the ordinary pus-producing organisms," an examination of the herd was ordered. The writer quoted figures showing that inspections of condemned herds by veterinarians confirmed the conclusions from laboratory work.

Doane[4] felt the need for a more accurate quantitative method for determining leucocytes, and, with Dr. Buckley, devised the Doane-Buckley method. The process is described by Doane as follows:

> With this method 10 cubic centimeters of milk are centrifuged for four minutes in graduated sedimentation tubes, at an approximate speed of 2,000 revolutions per minute. The cream is lifted out with a cotton swab, care being taken to get as much of the fat out as possible. It is then centrifuged for one minute more and the cream again removed with a cotton swab. Any fat remaining in the milk interferes seriously with the counting, as, if there are more than a few globules, they form a layer at the top of the liquid in the counting chamber, and as the leucocytes settle to the bottom of the chamber, it is difficult to see through the fat. It is only with cows giving milk difficult of separation where this trouble is experienced, and with such animals considerable care is necessary in removing all of the cream gathered at the top of the sedimentation tube. The method of removing the fat with cotton is the best one that has occurred to us, and it is the only part of the process that does not operate with entire satisfaction in every instance.
>
> Following the removal of the cream, after the second centrifuging, the bottom of the tube will contain a portion of sediment which is easily seen. This sediment may, in

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[3] Stewart. Methods employed in the examination of milk by city health authorities. American Medicine, Vol. IX, No. 12, p. 486.

[4] Doane. Leucocytes in milk, and their significance. Bulletin No. 102, Maryland Agricultural Experiment Station.

extreme cases of cows suffering with garget, amount to as much as one cubic centimeter. Ordinarily, it will be considerably less than one-half cubic centimeter. The amount varies considerably with the number of leucocytes, but not absolutely. The milk above this sediment is removed with a small siphon, which can be easily arranged with bent glass rods drawn to a fine point and supplied with a small rubber and a pinch cock. In using the siphon it is better to keep the point near the surface of the milk in the tube in order not to agitate the precipitated leucocytes and draw a number of them off with the milk. The milk in the tube may be siphoned within an eighth of an inch of the sediment in the tube. This will usually be below the ½ c.c. mark. Two drops of a saturated alcoholic solution of methylene blue are then added, thoroughly mixed with the sediment by shaking, and then set in boiling water for two or three minutes to assist the leucocytes in taking up the color. The contents of the tube can be boiled by holding it directly in the flame, but it has no advantage over the use of the water bath, and it is very likely to break the glass. After heating, some water is added to the tube to render the color less dense. Ordinarily filling the tube to the 1 c.c. mark will be sufficient, and this quantity gives an easy factor for calculating the final results.

In putting this liquid, containing the leucocytes, into the blood counter, considerable care is necessary, owing to the tendency of the leucocytes to sink to the bottom. At this place a capillary tube was used, and the cover glass was held in one hand ready to cover the chamber as soon as the drop was transferred to the counter. After placing the glass cover over the chamber, about a minute is required to allow the leucocytes to settle to the bottom of the chamber. There are very few foreign bodies that are likely to be mistaken for leucocytes in counting. Ordinarily, the polynuclear leucocytes predominate and the stained nuclei, with the unstained surrounding cell, show up very distinctly. A few small leucocytes with large nuclei may be found, and these may be confounded with yeast cells until the worker becomes familiar with the distinction.

As regards counting, we have taken a standard with a cubic centimeter as a basis quantity of milk, though we are of course aware that the corpuscles in the blood are enumerated with a cubic millimeter basis. We adopted the centimeter largely for two reasons. In counting bacteria in the milk the cubic centimeter is always the basis employed. Simply because the leucocytes were derived from the blood seemed to be no reason why the same basis for counting should be employed as was used with the blood, while to the ordinary bacteriological worker, to whom this work will fall, if ever adopted to any extent, the cubic centimeter standard would be a little more easily comprehended, because more frequently used. The blood-counter holds one-tenth cubic millimeter, and one ten-thousandth cubic centimeter. If 10 cubic centimeters of milk are used, and 1 cubic centimeter of fluid is in the tube after siphoning, and the coloring matter and the water used to dilute have been added, then the resulting number of leucocytes in the counter multiplied by 1,000 will be the total number of leucocytes per cubic centimeter in the milk. If a total of 75 leucocytes was counted in the chamber, there would be 75,000 leucocytes per cubic centimeter in the milk.

In the actual counting under the microscope a square millimeter of the counting chamber will be found to be ruled off into 400 smaller equal squares. This facilitates an accurate and rapid count. Where the number of leucocytes is not great, the entire field can be counted in a short time. Where there is a great number of leucocytes a few squares or sets of squares in different parts of the ruled surface will give approximately the number.

There are occasionally a few variations desirable from these rules, but it may be well to state that the details have been pretty carefully and thoroughly worked over and compared, and it is seldom that short cuts can be made if correct results are desired. The time and speed of centrifuging are placed as low as possible for accurate work. Where there is one half centimeter or more of sediment, it is necessary to use more of the methylene blue for staining, and as there will be too great a number of leucocytes to make a satisfactory count in the counting chamber, it is better to add water until there are 2 cubic centimeters, or sometimes even more, in the sedimentation tube.

This method of counting, while long in explaining, is in reality comparatively short and simple in application. Moreover, it is based on accurate measurements in every detail, and the results are correspondingly reliable.

This method gives much higher results than that used by Stokes and by Bergey. The cows of the Maryland Agricultural Experiment Station averaged 113,760 leucocytes per cubic centimeter, while those of "one of the best and most carefully kept herds in the United States" averaged 241,578 per cubic centimeter. Doane was unable to determine any difference between those leucocytes and pus cells. He would regard the presence of 500,000 leucocytes per cubic centimeter as suspicious, and 1,000,000 per cubic centimeter as indicating inflammation of the udder. He writes:

In truth, counting leucocytes with the blood-counter, or in any way putting dependence on the number of leucocytes, is very unsatisfactory. The presence of fibrin, as shown by clumps of leucocytes in the blood-counter, or, as demonstrated by stained threads, combined with an abnormal number of leucocytes, is the only satisfactory proof that inflammation exists in the udder.

Slack[5] modified the Stewart method by using tubes of a larger bore, containing 2 cubic centimeters, and smeared the sediment over 4 square centimeters. He condemns when over fifty cells are seen to the field of a one-twelfth oil immersion objective. He condemns for streptococci, when streptococci, diplococci, or cocci are observed microscopically, if the observation is confirmed by the presence of streptococci in cultures from the same sample.

Savage[6] devised a method similar to that of Doane and Buckley, which, like theirs, shows large numbers of leucocytes in the milk of normal cows. Savage can not distinguish between a leucocyte and a pus cell, nor does he set a standard to designate an abnormal number of pus cells.

The Stewart method was very slightly modified in the laboratory of the San Francisco Health Commission. The disk covered with tubes was fitted to a Bausch & Lomb centrifuge and a speed of 3,000 revolutions a minute was used. Milk of the various dealers was reported upon with respect to its content of streptococci, staphylococci, and pus.

It will be noted that there is a wide discrepancy between the different methods as regards the number of cells that should be regarded as indicating contamination by pus. Stewart condemns for 100,000 per cubic centimeter. Doane found the individual cows of a whole herd averaging twice this number and with hesitancy designated 500,000 leucocytes per cubic centimeter as suspicious. Doane used his method in judging the milk of individual cows, while the Stewart method was used to determine the quality of the mixed milk of whole herds. To detect the contamination introduced into the mixed milk of a herd by a few cows indicates a highly delicate test.

The variations between these methods and the prominence given the Stewart method in municipal laboratory work led us to conduct tests for the comparison of the two and for the comparison of duplicate determinations by each.

In our work with the Stewart method we used the apparatus devised by Stewart and made by Boekel of Philadelphia, fitted to our electric centrifuge capable of revolving 3,000 times a minute. For the numerical determinations by the use of the microscope, the relation borne by the area of one field to a square centimeter was determined by means of a stage micrometer. The precautions concerning the search of the whole area of the smear, as suggested by Stewart, were carried out. The Doane-Buckley method was carried out in strict accordance with the description quoted above.

The first numerical determinations of leucocytes were made by the Stewart method, on samples of market milk. By this method the total number of leucocytes in ten fields taken at random is observed. The average number per field is multiplied by a factor representing the relation of the area of the microscopic field to one square centimeter, the area of the smear. With our work this factor was 2173, 2332, or 2632, depending upon the microscope used. Table 1 contains the figures showing the total of ten fields and the numerical determination obtained by multiplying the *average* number of leucocytes per field by the factor.

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[5] Slack. Methods of bacteriological examination of milk. The Journal of Infectious Diseases, Supplement No. 2, February, 1906, p. 214.

[6] Savage. Streptococci and leucocytes in milk. Jour. Hyg. (Cambridge), (1906), No. 2, p. 123. Abs. in Experiment Station Record, Vol. XVII, No. 10, p. 1007.

TABLE 1.—*A Series of Numerical Determinations of Leucocytes by the Stewart Method.*

Leucocytes in 10 Fields.	Leucocytes per c.c.	Leucocytes in 10 Fields.	Leucocytes per c.c.	Leucocytes in 10 Fields.	Leucocytes per c.c.
8	1,865	300	69,960	33	7,695
5	1,316	105	27,636	9	2,098
18	3.911	79	17.166	7	1,521
10	2,173	1	233	6	1,303
13	2,824	32	7,462	48	10.430
1	217	0	0,000	13	3,031
3	651	7	1,521	1	233
3	789	0	0,000	43	9,343
3	651	13	2,824	18	3,911
0	0,000	5	1,166	0	0,000
15	3,948	0	0,000	12	2,607
0	0,000	1	233	2	434
129	33,952	8	2,105	6	1,303
50	13,160	181	*47,639	14	3,264
9	1,555	19	4,128	3	651
11	2,895	32	6,953	19	4.430
2	526	4	869	0	0,000
14	3,042	4	1,052	7	1,632
11	2,390	3	789	3	652
17	4,474	0	000	6	1.303
26	5,649	0	000	43	10,027
64	3,907	1	233	11	2,565

The sixty-six determinations averaged 5,459 leucocytes per cubic centimeter. In nine cases no cells could be recognized, and the highest number found in 1 c.c. was 69,960. The cells occasionally were not uniformly distributed, and it was difficult to count them accurately when they occurred crowded closely together. In only one case were large numbers of leucocytes and streptococci found associated, and this is designated by a star. In about half of the examinations other organisms such as micrococci and short rods were found.

Other determinations were made with market milk, to compare the results by the Stewart and Doane-Buckley methods, and are recorded in Table 2. The numerical result by the Doane-Buckley method is obtained by counting the number of leucocytes in one ten-thousandth cubic centimeter (.0001 c.c.) of sediment from 10 cubic centimeters of the sample. The number counted is multiplied by 1,000 to give the number of leucocytes per cubic centimeter of the milk. The figures for the Stewart method have the same significance as in Table 1.

TABLE 2.—*Numerical Determinations of Leucocytes in the Same Samples, by the Stewart and Doane-Buckley Methods.*

Number.	STEWART.		DOANE-BUCKLEY.	Number.	STEWART.		DOANE-BUCKLEY.
	Leucocytes in 10 Fields.	Leucocytes per c.c.	Leucocytes per c.c.		Leucocytes in 10 Fields.	Leucocytes per c.c.	Leucocytes per c.c.
67	29	6,301	78,000	225	13	2,824	31,000
71	32	6,953	26.000	226	9	1,955	32,000
72	44	9,561	20,000	227	11	2,390	14,000
73	21	4,563	24,000	228	12	2,607	46,000
74	27	5,867	18,000	230	5	1,086	33,000
75	57	12,386	48,000	231	14	3,042	29,000
77	3	789	37,000	232	10	2,632	88,000
78	26	6,843	33,000	233	12	2,607	74,000
95	34	8,949	40,000	234	17	3,474	55,000
97	11	2,895	22,000	235	12	2,607	30,000
99	36	7,822	38,000	236	13	2,824	83,000
182	11	2,390	33,000	238	21	5,527	55,000
183	7	1,521	77,000	240	14	3,042	101,000
184	14	3,042	58,000	241	27	5,867	61,000
185	4	869	29,000	242	126	33,163	33,000
186	31	6,736	55,000	243	11	2,395	182,000
187	34	7,388	41,000	244	5	1,086	49,000
188	6	1,303	28,000	245	6	1,579	52,000
190	7	1,521	31,000	246	1	2,173	95,000
191	1	217	62,000	247	3	789	13,000
192	28	6,084	42,000	248	37	8,040	108,000
193	10	2,173	41,000	249	12	4,563	147,000
194	8	1,738	48,000	250	4	869	56,000
195	21	4,563	50,000	251	9	1,955	10,000
196	15	2,359	49,000	252	12	2,607	37,000
197	5	1,086	67,000	253	4	869	37,000
198	11	2,309	97.000	254	71	16,559	411,000
203	14	3,042	17,000	255	4	869	9,000
221	3	651	44,000	256	46	9,980	539,000
222	2	434	23,000				
224	9	1,955	38,000	Totals		254,290	3,824,000

The figures for the sixty determinations show that the results by the Doane-Buckley method average over fifteen times as large as those by the Stewart method. There is no constant ratio between the results by the two methods.

Another series of determinations was made with the view of comparing duplicate determinations by the Stewart method with one another, and of further comparing the results by this method with those of the Doane-Buckley method. The samples were taken directly from the teats of individual cows in a dairy, where extraordinary attention was paid to the health of the cows. The cows were all free from udder disease, except two cases of slight skin infection, which produced no perceptible effect in the leucocyte count. The numerical results may or may not represent the leucocyte count of the milk of the various cows, for the samples did not represent the whole of the mess of milk yielded by the cows. The series of determinations appearing in Table 3 then are of chief importance for comparing the three determinations from each sample. The fifth column in the table shows the percentage relation of the lower count by the Stewart method to the higher.

TABLE 3.—*Numerical Determinations of Leucocytes in the Same Samples by the Stewart Method and by the Doane-Buckley Method.*

STEWART.					DOANE-BUCKLEY.
First Count.		Second Count.		Per Cent Relation of Lower to Higher.	Leucocytes per c.c.
Leucocytes in 10 Fields.	Leucocytes per c.c.	Leucocytes in 10 Fields.	Leucocytes per c.c.		
34	7,388	8	1,738	23.5	34,000
0	0,000	0	0,000	....	8,000
10	2,173	11	2,390	90.9	56,000
0	0,000	4	869	....	46,000
3	651	9	1,955	33.3	28,000
0	000	0	0,000	....	19,000
1	217	8	1,738	12.5	19,000
148	32,160	119	25,858	80.4	68,000
1	217	1	217	100.00	14,000
0	000	1	217	....	4,000
2	434	4	869	50.0	99,000
4	869	1	217	25.0	90,000
6	1,303	11	2,390	54.5	37,000
89	23,424	6	1,303	5.5	336,000
18	3,911	27	5,867	66.6	194,000
0	0,000	0	0,000	....	30,000
4	869	0	0,000	....	151,000
0	000	0	0,000	....	354,000
5	1,086	1	217	20.0	122,000
2	434	1	217	50.0	406,000
6	1,303	9	1,955	66.6	148,000
5	1,086	8	1,738	62.5	85,000
8	1,738	1	217	12.5	16,000
136	31,715	51	11,893	37.5	101,000
8	1,738	34	7,388	23.5	34,000
23	6,053	29	7,632	79.3	165,000
25	6,580	26	6,843	96.1	187,000
0	0,000	95	25,004	....	5,000
6	1,579	30	7,896	19.8	379,000
0	0,000	1	217	....	3,000
7	1,635	6	1,401	85.6	191,000
2	526	29	7,632	6.8	37,000
204	53,692	23	6,053	11.2	451,000
18	. 4,737	13	3,421	72.2	360,000
26	6,843	90	23,688	28.8	92,000
00	0,000	0	0,000	....	58,000
48	12,633	24	6,316	50.0	155,000
23	6,053	32	8,422	71.8	92,000
22	5,790	51	13,423	43.1	237,000
Totals,	218,817	....	187,201	....	4,911,000
Averages,	5,610	....	4,800	....	125,820

The average number of leucocytes by the Stewart method in the first series is 5,610, in the second 4,800, and in the Doane-Buckley method 125,820. The averages of the Stewart counts do not show an especially convincing agreement, the second average being 85 per cent of the size of the first. Agreement is very much closer in the case of the averages of the two series than in the individual counts of pairs. In one case the count is the same in each series. Other cases vary from this high percentage of agreement to the pair that is farthest apart, 23,424 leucocytes per cubic centimeter for the first and 1,303 for the second count, the second showing but 5 per cent as many leucocytes in a cubic centimeter as the first. Except for one single instance throughout the table, the Doane-Buckley counts are much greater than the Stewart counts. The average of the Stewart counts shows 4 per cent as many leucocytes per cubic centimeter as the average of the Doane-Buckley counts. The Stewart count that comes nearest to the corresponding Doane-Buckley count shows 15.6 per cent as many. The one count that comes farthest from agreeing shows 0.08 of one per cent.

A series of twenty-two determinations were made in duplicate by the Doane-Buckley method. In the case of the first two samples, two counts were made from the sediment and the numerical results of these are recorded as 1st and 2d drop, in Table 4. The closeness with which the two parallel determinations agree is shown in a column in which are figures showing the percentage relation of the lower to the higher determination.

TABLE 4.—*Numerical Determinations of Leucocytes in the Same Samples of Milk, in Duplicate, by the Doane-Buckley Method.*

Sample.	1 Leucocytes per c.c.	2 Leucocytes per c.c.	Per Cent Relation of Lower to Higher.
1	48,000 (1st drop) 29,000 (2d drop)	35,000 (1st drop) 29,000 (2d drop)	83.1
2	39,000 (1st drop) 42,000 (2d drop)	40,000 (1st drop) 44,000 (2d drop)	96.4
3	149,000	92,000	61.7
4	51,000	37,000	72.5
5	127,000	99,000	77.9
6	39,000	34,000	87.1
7	121,000	79,000	65.2
8	379,000	335,000	88.3
9	3,000	7,000	42.8
10	84,000	83,000	98.8
11	45,000	61,000	73.7
12	147,000	59,000	40.1
13	71,000	97,000	73.2
14	99,000	79,000	79.8
15	71,000	47,000	66.2
16	310,000	352,000	88.0
17	13,000	16,000	81.2
18	84,000	93,000	90.3
19	53,000	45,000	84.9
20	211,000	236,000	89.4
21	56,000	53,000	94.6
22	49,000	112,000	43.7
Totals	2,320,000	2,164,000	
Averages	96,666	90,166	93.2

The determinations from the 1st and 2d drops, in the first series, from sample 1 are discordant, but the other three duplicate drop counts are very close together. This line of work is treated more extensively in Table 5.

Thirteen determinations agreed within 25 per cent of the larger one, five within 35 per cent, and four more varied between 35 and 40 per cent.

Determinations 10 to 22 were made from the whole mess of milk of individual cows in the dairy of the University of California, and No. 8 was also made from the milk of an individual cow. The cows were all free from any apparent udder disease. This observation confirms that of Doane, who calls attention to the high leucocyte count of the milk of healthy cows.

A series of determinations was made with the Doane-Buckley method, on samples of the milk of individual healthy cows. In each determination two counts were made with different portions of the stained sediment. The results of these counts, together with figures indicating the percentage relation of the lower to higher, appear in Table 5.

TABLE 5.—*Numerical Determinations of Leucocytes by the Doane-Buckley Method, in which Two Counts were made from Each Centrifuge Tube.*

Number.	Leucocytes per c.c.		Per Cent Relation of Lower to Higher.	Number.	Leucocytes per c.c.		Per Cent Relation of Lower to Higher.
	First Count.	Second Count.			First Count.	Second Count.	
1	131,000	176,000	77.43	46	10,000	5,000	50.00
2	27,000	25,000	92,59	47	16,000	17,000	94.11
3	17,000	13,000	76.47	48	63,000	62,000	98.41
4	Clumped	Clumped	-----	49	106,000	112,000	89.35
5	18,000	17,000	94.45	50	17,000	10,000	58.82
6	14,000	12,000	85.71	51	61,000	55,000	90.17
7	30,000	38,000	78.95	52	22,000	18,000	81.82
8	68,000	81,000	83.85	53	131,000	127,000	96.95
9	16,000	14,000	87.50	54	77,000	89,000	86.51
10	60,000	32,000	53.33	55	12,000	17,000	70.59
11	18,000	13,000	72.22	56	124,000	114,000	91.93
12	9,000	11,000	81.82	57	7,000	9,000	77.78
13	29,000	34,000	85.3	58	8,000	7,000	87.5
14	63,000	85,000	74.12	59	28,000	25,000	89.29
15	69,000	68,000	68.55	60	24,000	29,000	82.76
16	29,000	28,000	96.56	61	36,000	43,000	83.72
17	28,000	17,000	60.71	62	58,000	53,000	91.38
18	34,000	20,000	58.83	63	104,000	107,000	97.19
19	21,000	15,000	71.43	64	44,000	37,000	84.09
20	14,000	14,000	100.00	65	17,000	15,000	88.24
21	33,000	43,000	76.75	66	13,000	15,000	86.66
22	58,000	50,000	86.21	67	8,000	7,000	87.5
23	18,000	25,000	72.00	68	17,000	14,000	82.35
24	35,000	33,000	94.29	69	30,000	32,000	93.74
25	19,000	20,000	95.00	70	80,000	87,000	91.96
26	73,000	75,000	97.34	71	21,000	21,000	100.00
27	107,000	99,000	92.52	72	375,000	369,000	98.38
28	120,000	102,000	85.00	73	52,000	64,000	81.25
29	62,000	60,000	96.78	74	4,000	6,000	66.66
30	59,000	31,000	52.54	75	24,000	28,000	85.71
31	19,000	22,000	86.36	76	31,000	24,000	77.41
32	23,000	23,000	100.00	77	35,000	41,000	85.37
33	71,000	72,000	98.61	78	28,000	21,000	75.00
34	10,000	8,000	80.00	79	87,000	84,000	97.71
35	54,000	53,000	98.15	80	49,000	29,000	59.19
36	8,000	10,000	80.00	81	49,000	33,000	67.35
37	28,000	19,000	67.86	82	39,000	42,000	92.86
38	24,000	20,000	83.33	83	40,000	44,000	90.91
39	12,000	15,000	80.00	84	99,000	86,000	86.86
40	18,000	27,000	66.00	85	3,000	2,000	66.66
41	23,000	29,000	79.31	86	7,000	6,000	85.71
42	35,000	28,000	80.00	87	19,000	13,000	68.42
43	226,000	210,000	92.92				
44	581,000	445,000	76.60	Totals	4,314,000	4,274,000	
45	17,000	21,000	80.96	Averages	49,586	49,126	

The average for the first count is 49,586, and for the second 49,126, which is an agreement within one per cent. The agreement between each pair of determinations is fair. Twenty-seven agree within 10 per cent, and there are no glaring inconsistencies.

A series of determinations was made from market milk to determine the numbers found by the Doane-Buckley method. These are set forth in Table 6.

TABLE 6.—*A Series of Numerical Determinations of Leucocytes by the Doane-Buckley Method.*

103,000	116.000	49,000	90,000	50,000	8,000	90,000
183.000	72.000	147,000	137.000	15,000	29.000	52,000
71,000	56,000	135,000	32,000	44,000	46,000	147,000
37,000	23.000	251,000	104,000	40.000	99,000	108.000
56.000	63,000	146.000	203.000	102,000	85.000	49.000
69.000	305,000	56.000	140,000	99,000	23,000	182,000
85,000	178,000	147,000	36,000	44.000	20.000	159,000
101,000	81.000	26,000	50.000	97,000	14,000	147,000
139,000	235.000	17,000	68,000	65.000	235,000	178,000
30,000	123,000	202,000	73.000	105,000	202,000	52,000
147,000	9,000	52,000	83.000	78,000	116,000	32,000
10.000	116,000	72.000	350,000	51,000	81,000	68,000
53,000	164.000	14.000	144,000	52,000	123,000	61,000
48.000	159.000	32,000	197,000	7,000	49,000	13,000
43.000	189.000	207.000	113,000	5,000	42.000	49,000
17,000	40,000	68,000	54,000	40,000	40,000	37,000
71,000	32,000					

The average number of leucocytes per cubic centimeter of the 114 determinations is 90,614. Seventy-three numerical results are below 100,000, thirty-two between 100,000 and 200,000, seven between 200,000 and 300,000, and two above 300,000.

It would not be justifiable to regard even the highest of these as evidence of disease among the cows, for they have been equaled by counts from undoubtedly healthy cows. Doane (*loc. cit.*) presents a series of 102 counts of milk of healthy cows that average 241,000 per cubic centimeter. In not one of the 114 samples was any clumping observed.

The collection of the samples of milk used for the determinations appearing in Table 5 occupied three afternoons. The milk of nine cows was sampled and counted twice on these days. Table 7 contains the results of these counts, in each of which two drops were counted in the blood-counter. In some cases the interval between counts is one day, in others two days.

TABLE 7.—*Numerical Determinations of Leucocytes in the Milk of Individual Cows on Different Days.*

	First Day.			Second Day.	
	First Count.	Second Count.		First Count.	Second Count.
	131.000	176.000		581.000	445.000
	21,000	21,000		28.000	25.000
	35,000	28.000		27.000	25.000
	16.000	14,000		28,000	19.000
	9.000	11,000		61.000	55.000
	30,000	38,000		58,000	53,000
	18,000	13,000		22.000	18,000
	18.000	25,000		7.000	9.000
	14,000	12,000		62,000	60,000
Totals	295,000	341,000	Totals.......	874.000	709.000
Averages ...	32,777	37,888	Averages....	97,111	78,777

The few observations recorded in Table 7 do not indicate a constancy in the number of leucocytes present on different days. The average of the counts of the second day is two and a half times the average of the first day.

The study of the leucocyte counts of the milk of a few cows over a long period of time would be an interesting piece of work.

Table 8 shows counts, by the Doane Buckley method, of the leucocytes in samples of the mixed milk from dairies, and from individual cows in those dairies, which showed some diseased condition of the udder. These samples were collected in the course of the sanitary inspection of a number of dairies, and the inspectors made a very careful examination of each cow, felt her udder all over, and even went so far, in most cases, as to sit down on the stool and do a part of the milking. Where there was any udder trouble a sample was taken from the pail when the milking of the cow was finished. The inspectors experienced difficulty in distinguishing between true mammitis and post-parturition troubles, so it is impossible to tell from the table what was the exact trouble in each case.

The composite samples were taken from the strainer tank at the end of the milking. Into this tank the milk from the cows was poured as the buckets were filled, and from this tank milk was being drawn and cans were being filled while the milking was still going on. So while the tank never contained all the milk from all the cows in the dairy, still a sample taken from it was a fairly just sample of the mixed milk of the herd, certainly as just a sample as would be gotten by a random collection from a milk depot. The composite samples never represented the milk of more than twenty cows. Where the milk is marked "used" it means that the milk from this cow was put into the straining tank with all the rest, and is represented in the composite sample.

TABLE 8.—*Counts, by the Doane-Buckley Method, of the Leucocytes in Samples of Mixed Milk from Dairies, and from Individual Cows in those Dairies.*

DAIRY 1.		
Composite	32,000.	
Cow 1	62,000.	One half of udder indurated. Used.
Cow 2	90,000.	One half of udder indurated. Used.
Cow 3	17,000.	One half of udder indurated. Used.
Cow 4	clumped.	One half of udder indurated. Used.
DAIRY 2.		
Composite	82,000.	
Cow 1	454,000.*	Udder indurated. Used.
Cow 2	clumped.*	One quarter of udder indurated. Used.
Cow 3	97,000.	One half of udder indurated. Used.
DAIRY 3.		
Composite	19,000.	
Cow 1	4,800,000.	Udder indurated. Used.
Cow 2	93,000.	One half of udder indurated. Used.
Cow 3	344,000.	One quarter of udder indurated. Used.
Cow 4	116,000.	One half of udder indurated. Used.
Cow 5	80,000.	Udder indurated. Calved 5 days ago. Used.
Cow 6	11,000.	Udder indurated. Calved 7 days ago. Used.
DAIRY 4.		
Composite	48,000.	
Cow 1	317,000.	Abscess discharging from part of udder. Used.
Cow 2	921,000.	One half of udder indurated. Used.
Cow 3	76,000.	One half of udder indurated. Used.
DAIRY 5.		
Composite 1	49,000.	
Composite 2	112,000.	
Cow 1	6,000.	One hard lump in udder. Used.
DAIRY 6.		
Composite	22,000.	
Cow 1	9.000.	Fresh three days. Used.
Cow 2	120,000.	(?) Used.

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* Badly clumped.

TABLE 8.—*Counts, by the Doane-Buckley Method, of the Leucocytes in Samples of Mixed Milk from Dairies, and from Individual Cows in those Dairies—Continued.*

DAIRY 7.		
Composite	12,000.	
Cow 1	1,520,000.	One quarter enlarged. No abscess. Used.
Cow 2	38,000.	One quarter indurated. Not used.
DAIRY 8.		
Composite	58,000.	
Cow 1	17,000.	One quarter indurated. Used.
Cow 2	18,000.	One quarter indurated. No abscess. Not used.
DAIRY 9.		
Composite	191,000.	
Cow 1	260,000.	Udder slightly indurated. Used.
Cow 2	92,000.	One quarter slightly indurated. Used.
Cow 3	58 000.	Skin infection. Used.
Cow 4	37,000.	(?)
Cow 5	451,000.	Bloody milk, but no lesion. Not in composite.
DAIRY 10.		
Composite	92,000.	
Cow 1	237,000.	Abscess in one quarter. Not used.
Cow 2	Innumerable.	Not used.
Cow 3	Clumped.	Udder slightly indurated. Not used.
Cow 4	150,000.	Udder slightly indurated. Used.
DAIRY 11.		
Composite	65,000.	Does not contain milk of Cow 1.
Cow 1	Innumerable.	(Clumped.) One quarter of udder swollen.
DAIRY 12.		
Composite	104,000.	(?)
Cow 1	53,000.	Sore red teat. Used.
DAIRY 13.		
Cow 1	129,000.	Udder swollen. Used.
Cow 2	7,000.	Udder swollen. Used.
Cow 3	47,000.	Teat red. Used.
Cow 4	17,000.	Fresh. Not used.
DAIRY 14.		
Composite	7,000.	(?)
Cow 1	146,000.	Emaciated. Used.
Cow 2	173,000.	Emaciated. Not used.
DAIRY 15.		
Composite	146,000.	
Cow 1	499,000.	Not used.
DAIRY 16.		
Composite	63,000.	
Cow 1	73,000.	Swollen udder. Used.
Cow 2	72,000.	Swollen udder. Used.
Cow 3	40,000.	(?) Used.
Cow 4	30,000.	(?) Used.
Cow 5	50,000.	(?) Not used.
DAIRY 17.		
Composite 1	96,000.	
Composite 2	34,000.	
Cow 1	3,000.	Udder abscess. Used.
DAIRY 18.		
Composite 1	85,000.	
Composite 2	42,000.	
Cow 1	173,000.	Swollen teat. Used.
DAIRY 19.		
Composite	16,000.	(?)
Cow 1	281,000.	(?) Used.
Cow 2	21,000.	(?) Used.
DAIRY 20.		
Composite	23,000.	(?)
Cow 1	296,000.	(?) Used.

TABLE 8.—*Counts, by the Doane-Buckley Method, of the Leucocytes in Samples of Mixed Milk from Dairies, and from Individual Cows in those Dairies—Continued.*

DAIRY 21.		
Composite	46,000.	
Cow 1	1,110,000.	One quarter indurated. Used.
DAIRY 22.		
Composite 1	134,000.	(?)
Composite 2	163,000.	(?)
Composite 3	245,000.	(?)
Cow 1	61,000.	Emaciated. Used.
Cow 2	115,000.	Emaciated. Used.
Cow 3	Clumped.	Abscess in udder. Used.
Cow 4	9,000.	Emaciated. Used.
DAIRY 23.		
Composite 1	75,000.	
Composite 2	80,000.	
Cow 1	10,000.	(?) Used.
Cow 2	361,000.	Udder indurated. Used.
Cow 3	125,000.	Udder indurated Used.
Cow 4	226,000.	Fresh. Not used.
Cow 5	152,000.	(?)
DAIRY 24.		
Composite 1	180,000.	
Composite 2	43,000.	
Composite 3	62,000.	
Composite 4	20,000.	
Composite 5	104,000.	(Clumped).
Cow 1	190,000.	Abscess in udder. Used.
Cow 2	10,000.	(?) Used.
Cow 3	154,000.	Emaciated. Used.
Cow 4	268,000.	Fresh. Used.
DAIRY 25.		
Composite 1	50,000.	
Composite 2	55,000.	
Composite 3	43,000.	
Composite 4	17,000.	
Cow 1	52,000.	Udder indurated. Used.
Cow 2	325,000.	Udder indurated. Used.
DAIRY 26.		
Composite 1	25,000.	
Composite 2	25,000.	
Composite 3	14,000.	
Cow 1	196,000.	Emaciated. Used.
DAIRY 27.		
Composite	47,000.	
Cow 1	959,000.	Udder swollen. Used.
Cow 2	207,000.	(?) Used.
Cow 3	67,000.	(?) Used.
DAIRY 28.		
Composite	79,000.	
Cow 1	241,000.	Udder indurated. Used.
DAIRY 29.		
Composite	21,000.	
Cow 1	383,000.	Emaciated. Used.
DAIRY 30.		
Composite 1	17,000.	
Composite 2	16,000.	
Cow 1	20,000.	Udder indurated; fresh. Not used.
Cow 2	93,000.	Emaciated. Used.
Cow 3	54,000.	Emaciated. Used.
DAIRY 31.		
Cow 1	453,000.	Fresh. Used.
DAIRY 32.		
Cow 1	17,000.	Fresh.

It is noticeable in the table that the milk from the diseased cows has no recognizable effect on the count of the mixed milk. Most of the composite counts would be regarded as entirely normal, and the highest one of all is that of Dairy 9, 191,000, which lies well within the probable safety limit suggested by Doane.

In Dairy 3, cow 1 has a count of 4,800,000, and yet the mixed milk count is only 19,000. In Dairy 8 the mixed milk count is larger than that of any of the recognized diseased cows in the herd. The originators of the Doane-Buckley method of estimating leucocytes in milk did not claim that the milk of diseased cows could be detected in herd milk by an increase in number of leucocytes alone, but suggested that it might be recognized by an increase in number of leucocytes, together with clumping of the leucocytes or fibrin. Only six of the samples from diseased cows showed any clumping, and only one of the composites, that one being that of Dairy 24, in which none of the milks from diseased cows showed any clumping. The counts of the individual cows, all diseased, vary from 3,000, for a cow reported as having an udder abscess, to 4,800,000, for one reported as having an indurated udder.

CONCLUSION.

The results so far obtained confirm the suspicion that it is not possible to detect udder disease in cows by the examination of a mixed milk for number of leucocytes alone. The results by the Stewart method are so erratic that while an occasional count, which would be regarded as high for that method, may indicate trouble, the low counts seem to indicate only the failure of the method to show the leucocytes present. If the results by the Stewart method were consistent, all counts might be significant in spite of the fact that they show only a small proportion of the leucocytes present. We have no observations to show that a combination of large numbers of leucocytes and streptococci may not indicate that the milk is contaminated. We have encountered this condition very rarely and much less often than the condition of the herds would lead us to expect.

We do not regard the circumstance of finding diseased udders in a herd whose milk has been condemned by the Stewart test as a confirmation of the value of that test in locating udder diseases.

In the first place, udder trouble can usually be found in a large dairy. In an inspection of 9,200 cows in 86 dairies about San Francisco, made under the direction of one of us, 31 per cent of the dairies were reported as showing cows with udder disease. The inspection of dairy cows on a wholesale scale, with reference to the existence of udder disease, undoubtedly does not reveal the whole amount of such disease. The matter of udder disease was a small detail in the inspection of most of the 86 dairies, for the inspectors were primarily studying sanitary conditions.

The presence of streptococci in milk can not be regarded as proof of the existence of active mammitis in the cow. Reed and Ward[7] have observed the constant presence of streptococci in the milk of a healthy cow in the Cornell University dairy. The fact that she had not, so far as known, shown symptoms of the disease, lent special interest to the observation. The milk record of the cow showed a steady increase from 1892 until 1898, when the observation was made, which fact indicates that she had not suffered a serious attack of mammitis. Bergey (*loc. cit.*) found streptococci in samples of milk of cows in which no inflammation of the udder could be discovered. Heinemann[8] has made examinations "finding that streptococci are invariably present even in milk obtained with unusual precautions and from healthy cows." He reaches the conclusion: "Since *Streptococcus lacticus* is invariably present in market milk and in milk collected with good precautions, the sanitary significance of streptococci in market milk will need further investigation." Savage (*loc. cit.*) found streptococci present in 42.5 per cent of the samples of milk of individual cows, and found them in the mixed milk invariably.

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[7] Reed and Ward. The significance of the presence of streptococci in market milk. American Medicine, Vol. VII, p. 256.

The microscopic examination of milk for staphylococci is likewise of questionable value. There are plenty of micrococci almost invariably present in milk, that have the microscopic appearance of pyogenic organisms and even simulate them in cultural characteristics. The udders of healthy cows contain these micrococci and other organisms. Observations on the bacterial flora of the udder have been recorded by Bergey (*loc. cit.*), Ward[9], Harrison[10], Freudenreich[11], and others. The presence, then, of bacteria in even freshly drawn milk is no justification for the assumption that the organisms in question are pathogenic.

The Doane-Buckley test is far more consistent in every respect than that of Stewart. Examination of the milk of individual healthy cows by the Doane-Buckley method has shown such large numbers of leucocytes present in the milk of healthy cows that a narrow margin exists between the leucocyte count of the milk of healthy and of diseased cows. A distinction might be made in the examination of milk of individual cows, but when the milk of one diseased cow is diluted with others with a lower count, as in the case of a mixed herd milk, the result upon the average is impossible to detect.

In view of all these observations we feel that the numerical determination of leucocytes in mixed milk, for the purpose of detecting the existence of mammitis among the cows of the dairy, does not rest upon a firm experimental basis.

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[8] Heinemann. The significance of streptococci in milk. Journal of Infectious Diseases, Vol. III, No. 2, p. 173.

[9] Ward. The invasion of the udder by bacteria. Bulletin 178, Cornell University Agricultural Experiment Station.

[10] Harrison. The bacterial contamination of milk, and its control. Transactions of the Canadian Institute, Vol. VII, 1902-3, p. 467.

[11] Freudenreich. Ueber das Vorkommen von Bakterien im Kuheuter. Centralblatt f. Bakteriologie, II Abteiling, X Band, 1903, s. 401. Also, Ueber die Bakterien im Kuheuter und ihre Verteilung in den Verschiedenen Partien des Melkens Landewirtschaftlichen Jahrbuch der Schweiz, 1904.

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TWENTIETH BIENNIAL REPORT

OF THE

STATE BOARD OF HEALTH

OF

CALIFORNIA

FOR THE

Fiscal Years from July 1, 1906, to June 30, 1908

SACRAMENTO:
W. W. SHANNON, SUPERINTENDENT STATE PRINTING.
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LETTER OF TRANSMITTAL.

OFFICE OF CALIFORNIA STATE BOARD OF HEALTH,
SACRAMENTO, September 15, 1908.

To His Excellency, JAMES N. GILLETT,
Governor of California.

DEAR SIR: In accordance with the State law, I herewith transmit to you the twentieth Biennial Report of the State Board of Health of California for the fifty-eighth and fifty-ninth fiscal years, including the reports of the Departments of Vital Statistics, of Hygiene, and of Pure Foods and Drugs.

Yours, very respectfully,

N. K. FOSTER,
Secretary of State Board of Health.

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REPORT OF THE BOARD.

REPORT OF STATE BOARD OF HEALTH.

Since our last report the Board has had a very active biennial season. This awakening has been in no small degree caused by the activity of the Board in calling the attention of the people to the dangers of unsanitary conditions, and by a sincere effort on its part to enforce the State laws relating to sanitation.

We have endeavored to educate the people, believing that better results could be gained by showing them the right way than by prosecuting them for doing the wrong, when they knew no other. In a vast majority of cases our efforts have been met with kindness and a willingness to remedy wrong conditions. This has been manifested by the many calls upon the Board for aid. Such aid has been given to the best of our ability, never neglecting where possible to go to the relief of a community when requested to do so. Oftentimes, where sanitary conditions were bad, we have instigated investigations, which have resulted in their betterment.

Weekly, and sometimes almost daily, we have received calls from some part of the State to go and abate some nuisance which is limited in its extent, affecting but one or two families. These calls have been so numerous that, coming as they do from remote parts of the State, it has been impossible to respond in person. The nuisances complained of are generally real and should receive attention, but it is not uncommon to receive the same day a call from Siskiyou and San Diego, and when it is considered that the Board has but one executive officer whose duties cover such work, in addition to the general supervision of the office, it can be readily seen that to respond in every case is quite impossible.

The work of abating nuisances, as well as much other work we are called upon to do, is primarily that of local officials; but for many reasons it is necessary that much of it be done under the immediate supervision of State officers. Comparatively few of our cities have properly organized health departments. Nearly all the counties are deficient in this respect, and many of the towns have no such department or officer whatever. Also, in many cases the local health officer is unsalaried, and will not, nor can he be expected to, devote the time necessary to a performance of his duties. Moreover, the matter of preventing the spread of disease is of more than local concern. The existence of an epidemic in one community is a menace to all parts of the State, and it is proper, if not essential, that the State through its officers should interest itself in the work.

In addition to the immense amount of work imposed on the executive officer of this Board by calls made upon him for attention to nuisances, epidemics, and matters of sanitation in various parts of the State, he has upon his hands the supervision of the work done under the pure foods and drugs act, the department of vital statistics, and a large correspondence. The point has now been reached when it is impossible for one man to attend to these duties. In order that the work may be continued with anything like the desired efficiency, it is absolutely necessary that provision be made for an assistant—not a clerical assistant, but a professional man qualified in all matters to act in the place and instead of the secretary of this Board. We strongly recommend that provision for the appointment of an assistant secretary be made by the next legislature.

The Board feels satisfied that great progress has been made during the last two years in bringing California to the position which her locality, her resources, and her splendid climate entitle her—that of being the most healthful and sanitary state in the Union. There is still much to be done, and the want of proper organization throughout the State hampers the work. This organization, which must be local, can be acquired only by exciting a desire for better conditions and a demand by the people for more efficient local health departments.

POLLUTION OF STREAMS.

The condition of our streams has been and still is a menace to health, but has been somewhat improved. Several towns which have been emptying their sewage into streams, regardless of the health and rights of those below, have put in sewage destruction plants. There is a State law strictly forbidding the pollution of streams and lakes of the State with sewage, and the attention of the principal offenders has been called to it, with a request that they change their methods. Not in all cases have they complied with the request, but most of them have shown a disposition to do so, some have already complied, and others have taken the first steps toward the solution of what is, in some cases, a serious problem. The rivers are not natural sewers, but are intended to conduct pure water through the land.

Our unnatural mode of living in large communities, where the accumulated waste is great, makes it necessary to provide means for its disposal. Science has done this, and no person or community has a moral or legal right to contaminate the streams which are and must be used to a greater or less extent for domestic purposes. This contamination in the past has caused a vast amount of sickness and many deaths, and it is a satisfaction to see that the facts are coming to be appreciated.

Some of the most advanced Eastern states require cities and towns to report all plans of sewer systems and water supplies to the State Board of Health for inspection and sanction. In California the State Board has no authority in this matter, but it has numerous calls to give advice and aid, and it has been instrumental in protecting some local supplies of water from gross pollution by sewage. Provision for a consulting engineer to be attached to this Board for the purpose of having general supervision over the construction of sewer systems, to the end that there may be uniformity in such work and that one part of the State may be protected from the results of ill-considered action in another, is a matter worthy of consideration. There is no escape from the proposition that the public health is a matter of general and not mere local concern.

We recognize the benefit and desirability of a vacation spent in the mountains by those who have passed the year in hard work, but we see the danger of those same parties polluting the streams on which they camp or live, and spreading disease and death to those below. We have tried to remedy this by authorizing the posting of printed notices quoting the law forbidding the pollution of streams. As the camping habit is extensive and the streams are innumerable, the ground has not by any means been covered; but the work has been begun, and how many lives saved no one can tell.

In the protection of our lakes and streams California should take a lesson from the older Eastern states where now vast sums of money are being expended to provide other means of disposing of waste. Their streams have, in some cases, become mainly open sewers, which are sickening to sight and smell, and in which fish will not live. As yet ours are comparatively clean, and if modern methods are adopted now, when land is comparatively cheap and the towns not large, much trouble and enormous expense will be saved.

The health of the State has, as a rule, been good. No extensively fatal epidemic has existed, and the death-rate has decreased during the past year. When we consider that the report of deaths is vastly more complete for 1907 than for 1906, the decrease in the death-rate will be still more marked.

BUBONIC PLAGUE.

After more than five years of freedom from that disease, on May 27, 1907, a case of bubonic plague was discovered in San Francisco. No further cases were discovered until August 12th of that year, but thereafter the number increased rapidly until, on September 4th, the situation was found to be of such gravity that Mayor Taylor applied to the President for Federal aid. At his request the United States Public

Health and Marine Hospital Service was given full charge of the measures taken for the suppression of the disease in that city. Passed Assistant Surgeon Rupert Blue, whose experience in combating the plague especially qualified him for the work, was detailed as the commanding officer, and continues to this time in charge.

Under his directions the Federal, State and local authorities have carried on a relentless campaign, the features of which have been the mathematical accuracy with which all operations have been conducted, the broad scientific principles applied, and the constant endeavor to preserve the health and the commerce of the State.

As a result of this work San Francisco has been thoroughly cleansed, the number of rats has been greatly reduced, and much permanent work for the prevention of the introduction and spread of the disease in the future has been done. Other counties about the bay, particularly Alameda, have likewise profited by the campaign for sanitation and extinction of rats.

The largest contributor to the expense of this work has been the Federal Government, its outlay being as much as $50,000 monthly. The cities of San Francisco and Oakland each appropriated large sums; other cities and some of the counties also contributed. Out of what is known as the Contagious Disease Fund, the State has spent in the neighborhood of $2,000 per month. Thus the expense of this fight may conservatively be estimated at $500,000, and the end is not yet. This costly experience is likely to be repeated at almost any time unless the preventive measures taken and recommended are persisted in.

The type of the disease is virulent. In San Francisco 159 cases were identified. Of these 77 were fatal. In Alameda County 14 cases were identified, and 9 were fatal. In Contra Costa County there were 3 cases and 2 deaths. In Los Angeles County one case only has been discovered, in which a complete recovery was had.

A detailed statement of the work done would require more space than can be given in this report, but it may be well to indicate in a small way some of the measures taken to prevent the spread of the disease.

Coastwise and deep-sea vessels, and such of the bay craft as were brought to the station established, have been fumigated at regular intervals, under the direction of Dr. Hobdy, United States Quarantine Officer. Other bay and river craft were fumigated at their wharves. The purpose of this fumigation has been to prevent vessels from carrying infected rats. With the beginning of the work nearly all vessels were found to be infested with these rodents, but their number gradually decreased until the craft fumigated were virtually rid of the pests.

At Dr. Hobdy's station, from September 2, 1907, until August 30, 1908, 2,796 vessels were fumigated, at the total expense of $34,794.84, all met by the Federal Government. In the early days of the work it was not uncommon to find one hundred dead rats on one vessel; in one case more than five hundred, and in another case more than three hundred, were found.

Fumigation at the docks and wharves was conducted under the supervision of Dr. A. Berg and Dr. A. P. Kaelber, inspectors employed by this Board. These inspectors fumigated 626 vessels, all bay craft, a large portion of them being passenger ferryboats. On these vessels very many less rats were found, the total accounted for being 461. The expense of these fumigations, outside of the inspectors' salaries, was borne by the owners, who preferred this to losing the time necessary to visit Dr. Hobdy's station.

This work of fumigation, as well as the use of measures to prevent rats passing between vessels and the wharves at which they were tied up, necessarily caused some annoyance, loss of time and expense to the owners. But when it is considered that during all of this time numerous infected rats have been taken along the San Francisco water front, and that, although traffic between that city and other ports has been interrupted, no case of plague elsewhere has been traced to San Francisco, the importance of the work is easily seen. Had not these and like precautions been taken there is no doubt but that foreign and coast ports would have established a quarantine against San Francisco and other bay ports, our commerce would have suffered an irreparable injury, and in all human probability the plague would have become epidemic throughout a large portion of the State. Therefore, while the work done has been exceedingly costly, that cost is merely a drop in the bucket when compared with the damage and expense that would have resulted in the absence of proper precautionary measures.

It has now definitely been ascertained that in addition to the rat, we have also the ground squirrel to contend with as a purveyor of the plague. Infected squirrels have been found in Contra Costa County and Los Angeles County. In each instance these infected animals were found in the immediate vicinity of the human cases, and in Los Angeles County the only case of plague yet discovered was that of a child bitten by an infected squirrel.

These rodents are so numerous in the country districts and so hard to eradicate that the spread of the disease through them to all parts of the State is a danger most serious and threatening. This Board believes that the importance of devising, through legislation, an effective means of ridding the State of these pests is of the very greatest importance.

Of equal importance is the problem of destroying the rats. That they are the vehicle for the spread of plague is fully demonstrated, and there is good reason to believe that they are also the means of disseminating leprosy, trichinosis (when eaten by hogs), scabies and tapeworm. In fact, the great bulk of many thousands of rats examined in San Francisco has been found to be diseased, and a large part of them with maladies communicable to man. Moreover, their depredations in warehouses and granaries mean a yearly loss of thousands of dollars.

One effective method of ridding the State of rats is the proper handling of garbage. The incineration of garbage by municipalities throughout the State should be made mandatory by general laws. This is necessary not only for the purpose of depriving the rat of his favorite feeding ground, but for reasons of general sanitation, one of the most important of which is that the garbage dump is the natural breeding place of the fly, an insect which is most active in spreading typhoid fever and tuberculosis.

Additional measures taken by this Board to prevent the spread of disease were the systematic inspection of the dead throughout the bay counties, the regulations forbidding the transportation of manure, rags, and waste materials, until after sterilization and inspection, and vigorous measures taken to awaken local authorities to a realization of the importance of precautionary measures. Inspectors have been kept at work in San Francisco, and Alameda, Contra Costa, Solano, Napa, San Mateo, Santa Clara, Marin, and Sonoma counties. If no other results had been obtained, the prompt discovery by the local inspector of the latest cases of plague in Contra Costa County would fully justify the total expense incident to the employment of these inspectors.

Some of the measures suggested in connection with the fight against plague will be difficult in execution; all will be expensive; but when we realize that this is the most to be dreaded of all the maladies to which our citizens are subject, and the enormous cost of abating it when once the disease appears, surely there should be no question in the mind of any sane man. The eradication of plague and the minimizing of the possibilities of it again appearing in our State are cheap at any price.

SMALLPOX.

Before its virulency was modified by resort to vaccination, this disease was the most terrible with which man had to contend. In modern times its form has been milder, and the frequency and extent of epidemics of the disease have been materially lessened. These facts have caused the people to become careless in respect to the matter of vaccination, and in many communities we have now an unvaccinated generation. The result is that the depredations of smallpox have correspondingly increased. During the last two years numerous epidemics have occurred, some of them of alarming extent, and many lives have uselessly been sacrificed.

It is of the utmost importance that more serious consideration be given to this disease by health officers and school boards. The laws of our State confer upon health boards and officers ample powers to quarantine, but through ignorance, lack of moral courage or inaction, in many instances the power has not been exercised. Cases have repeatedly been brought to our notice in which afflicted persons have been permitted to expose themselves on the street and in public conveyances, and thus the disease has been spread to distant localities.

The compulsory vaccination law makes it the duty of school boards to exclude unvaccinated children from the common schools, and their failure so to do is punishable as a crime. Yet we find this mandate obeyed in but few instances. In at least one instance the school board has refused to obey the law, although at the time smallpox was prevalent in the community. Such a stand taken by school trustees is more than a statutory crime; it is morally outrageous. Happily public opinion is so overwhelmingly in favor of obedience to this law that such things can not long endure.

TYPHOID FEVER.

Typhoid fever claimed 558 victims in 1907, sacrificed mostly to carelessness. This is a preventable disease, and is spread always from some preceding case. Frequently this is through water polluted by the drainage of some city, house, or camp, but dirty milk and flies are also active factors. With a clean water supply the number of case will decrease; but the most efficient preventive is the destruction of the germs as they leave the diseased person in the excretions. This is the duty of physician and nurse, and they should materially reduce this death-rate.

The locality in which this disease is found should always be carefully examined by an expert from the State Board of Health, for generally one case is followed by more. Such an expert, if attached to the Board, would save money to the people. An example of this occurred during the past year. Typhoid broke out in a certain locality and several cases occurred. The owners of the industry where it occurred paid an expert $1,000 to examine and report upon the source of trouble. It was easily run down and remedied. Shortly thereafter the Board was requested to go to an infected town, and sent an expert, where a like work was done at an expense to the State of $43—a difference in cost of $957. The industry paying the $1,000 was no doubt able to pay the amount, but most small towns are not, nor has this Board means to hire experts on all occasions. Sufficient expert help should be attached to the Board so this work can be done.

DIPHTHERIA.

Diphtheria has claimed 380 victims, most of whom could have been saved had antitoxin been used early and in sufficient quantities. The expense of this remedy has been and is so high that it could not be secured by those of very limited means. To obviate this, the State Board of Health has made arrangements with the Cutter Laboratory at Berkeley whereby local boards of health or health officers can secure antitoxin from any druggist, at a minimum price, for the use of indigents.

The dislike to be known as an indigent should not prevent any one from saving the life of his child. Unfortunately, however, many are cursed with pride. It would save many lives if the State would buy, and distribute gratis, antitoxin for all cases of diphtheria. This is done in some of the Eastern states, and the disease is but a small fraction of what it was before.

TUBERCULOSIS.

This preventable disease, which is cutting down our men and women in the prime of life, killed 4,607 of California's people during 1907—a useless slaughter of more than one every two hours of each day, a sacrifice to superstition and misinformation.

This disease is *not* inherited, but is infectious, and it can be cured if taken in season. Neither is it necessary to contract it. A simple life, with nourishing food, pure air all the time, plenty of rest and abstinence from stimulation, will defeat the most persistent attacks of the germs. The last Legislature, appreciating the need of beginning the fight against this, our most fatal disease, appropriated $2,000, and placed it in the hands of the State Board of Health to be used in the dissemination of knowledge as to means of prevention and cure. There are more than 2,000,000 inhabitants in the State. Taking that figure as correct, $2,000 means one tenth of one cent for the education of each person. Or, allowing five per family, one half cent per family. The cheapest postage is one cent, so to reach them all, or even a majority, was manifestly impossible. Still we have distributed 250,000 leaflets to the school children of the State, and 15,000 eight-page circulars to the teachers. This could not have been done had we depended on the mails; but Mr. Hyatt, Superintendent of Public Instruction, kindly requested the various county and city superintendents of schools to have them distributed. The Board bought the printed matter and sent it by freight to the various superintendents, in this way reaching a great number of homes.

In many of the smaller cities of the State, where the people have less opportunity for information than in the large ones, stereopticon lectures illustrating the cause, means of prevention and cure of the disease have been given. The lectures have been attended by hundreds of people and have been the means of spreading information where needed most. At the State Fair of 1907 a series of stereopticon lectures was given, and at the Fair of 1908 an exhibit illustrating the subject was made. These were visited by a great many and aroused much interest.

We have placed upon the tables of all the public reading rooms on our mailing list the very excellent prize essay of 100 pages by Dr. Knopf, and are sending to reading rooms, labor organizations, and clubs 200 subscriptions of the Bulletin issued bi-monthly by the California Association for the Study and Prevention of Tuberculosis. This literature will reach a class of people much in need of the information. There is still left one half the appropriation, for use the coming winter and spring. The appropriation was small when compared with those made in Eastern states, where in some instances hundreds of thousands of dollars were appropriated for like purposes; but we feel that much good has been done, and earnestly advise that further appropriations be made to continue the needed work.

REPORTING CONTAGIOUS DISEASES.

The last Legislature passed a law requiring that any one having knowledge of a person sick with contagious, infectious, or communicable disease should report it to the local health officer. This duty, of course, falls largely upon the physicians. We regret to state that this law has been obeyed but poorly. In many places it is entirely disregarded and in others only partially complied with. It is difficult to see why this should be so, for physicians are, as a rule, law abiding and good citizens. In order that a health department may control contagious disease, it is the first requisite that they know its location, and many epidemics have got beyond control through such neglect on the part of physicians. Should another die from disease contracted from an unreported case, the physician has good reason to charge his conscience with causing that death. We believe that it is largely a matter of carelessness, but a neglect that has caused many a painful scene beside a little casket. Probably no more legislation is needed on the subject, but a more healthy moral tone is demanded among the people at large, who not only submit, but even urge the physician not to report, and sometimes threaten him if he does.

DEPARTMENT OF VITAL STATISTICS.

The important department, upon which much of the science of preventive medicine is founded, has, during the past two years, not only continued its former good work, but has improved. There are very few deaths in the State that are not properly recorded, and the same is true of marriages; but the recording of births is very far from complete. There has been, however, a marked improvement in the birth record, and it is not too much to hope that in the near future physicians and midwives will report them all.

They certainly have no more important duty than to record the first and most important event in a person's life. The record may be of the most incalculable benefit in the future in establishing citizenship and the right to vote, settling estates, enforcing child labor laws, and military service. The State has a right to know its children, and we appeal to the physicians to give this matter their earnest support. The report of this department is appended.

DEPARTMENT OF HYGIENE.

This Bureau has done a vast amount of beneficial work on the small appropriation of $2,000 per year, but it is manifestly impossible to cover the State and do all that is needed.

Diphtheria has claimed a large share of the time, and the appended report demonstrates what has been accomplished in this regard.

The epidemic of diphtheria at the Southern California State Hospital and the work done by the department shows the necessity of a more extended equipment. In the early stages of the epidemic the tests were made by private parties and cost $1.50 each. This is a reasonable charge for a private laboratory, but the State succeeded in doing the work for six cents each, thus saving to the State in this one epidemic, where 6,000 examinations were made, more than the $4,000 appropriated for the maintenance of the work for two years.

This department should be housed in the same building with the State Pure Food Laboratory. At present the work is conducted under the most adverse circumstances on account of the very small room allotted. Provision should also be made for the employment of a bacteriologist to work in connection with this department in Los Angeles.

DEPARTMENT OF PURE FOODS AND DRUGS.

As early as 1850 a statute was enacted forbidding the sale of adulterated foods and liquors. (Statutes of 1850, page 244.) Another act, forbidding the sale of adulterated liquors and beverages, was adopted in 1860. (Statutes of 1860, page 186.) A third act, forbidding the sale of adulterated foods and liquors, and prescribing rules for the labeling thereof, was adopted in 1862. (Statutes of 1862, page 484.) A further act, forbidding the sale of adulterated milk, was adopted in 1870. (Statutes of 1870, page 298.) In 1872, provisions based upon the above-mentioned statutes were embodied in sections 380, 381, 382, and

383 of the Penal Code. Other statutes, pertaining to the same subject-matter, were enacted in 1878 (Statutes 1877-78, page 535), in 1881 (Statutes of 1881, page 14), in 1883 (Statutes of 1883, page 20), in 1901 (Statutes of 1901, pages 324, 458, 459, 460), in 1903 (Statutes of 1903, page 351), and in 1905 (Statutes of 1905, pages 168, 169, 769, 770).

The provisions of the statutes above noted were quite as strict, in most respects, as those of the acts of March 11, 1907, now in effect, and the penalties imposed were even more severe than those fixed by the present laws. For their enforcement, however, no special machinery was provided. The matter was left to the complaint of individuals or the voluntary action of local peace officers and prosecutors. The result was that these acts virtually became "dead letters," and so little attention was paid to them that comparatively few persons knew of the existence of any law on the subject.

In recent years many of the Eastern states have adopted laws designed to prevent the adulteration of foods and drugs, and to protect the public against fraudulent and deceptive labeling. Upon the principle that the public health of the people of a commonwealth is a matter of general concern, not of local interest merely, and because the enforcement of such laws can be accomplished only by some board or officer having jurisdiction throughout the State, the administration of these laws generally has been given over to the State health officers.

Responding to a demand, almost universal in its extent, Congress, in June, 1906, passed a similar law, the enforcement of which was imposed upon the Department of Agriculture. For many years a corps of experts had been at work, under the direction of the Secretary of Agriculture, endeavoring by experiment to ascertain the exact effect of certain well-known adulterants, and to establish standards of purity for foods, liquors, and drugs. Since the adoption of that act these experiments have been continued. These investigations have been most extensive; the conclusions reached are based upon the effects produced by actual experiments with perfectly healthy human beings, and the department is not compelled in any case to rely upon the opinions of experts or others, but is able to make absolute proof as to the effect of the adulterant in question. The advantage of these investigations is not to the Federal Government only. They have resulted in the accumulation of a vast amount of exact knowledge, equally available to State authorities.

In 1907 two acts were adopted by the Legislature of this State, one covering the subject of drugs, and the other that of foods and liquors. The scope and provisions of these acts are virtually uniform with the Federal laws. Taking advantage of the opportunity offered, the Legislature of this State made provision that the standards of purity of foods and liquors proclaimed by the Secretary of Agriculture should be those required in the enforcement of our law. The adoption of this feature of the act was most wise. It relieves the State of the expense of an enormous amount of expert work, and expedites the enforcement of the law to a degree that is surprising.

The statutes of March 11, 1907, did not go into effect until January 1, 1908, and were so drafted that manufacturers might correct their labels and adjust their methods of manufacture correspondingly. The principles underlying this legislation being perfectly simple—that foods and drugs must not be adulterated, and that labels must speak the truth—there seemed to be no good reason why nine months should not be ample time for the purpose. Particularly, in view of the fact that we had had similar laws for more than fifty years and the Federal law had been in operation for some time.

In addition, this Board gave as much publicity to the law as possible; but, in spite of all, nearly every person accused has entered the plea of ignorance. Deeming it to be for the best interests of the work the Board has recommended leniency in the punishment of first offenders, but has adhered strictly to the provision of the act requiring it to refer every case to the proper district attorney, when a violation is established.

In all 158 cases have been certified to the Board by the Director of the State Laboratory. Of these 158 have been heard, as required by the act, and with but a few exceptions the findings of the Director have been sustained. Cases have been referred to district attorneys for prosecution as follows:

District Attorney of Los Angeles County	50
District Attorney of Alameda County	55
District Attorney of City and County of San Francisco	41
District Attorney of Marin County	5
Total referred for prosecution	151

Reports from these cases received at this date are incomplete, many of the cases having been recently referred, but in no case reported has there been an acquittal. The convictions reported are as follows:

County.	Convictions.	Total Fines Imposed.
Los Angeles	37	$1,185 00
San Francisco	2	50 00
Alameda	3	75 00
Marin	No report.	
Totals	42	$1,310 00

The results of the Board's activity in this matter are most gratifying. As soon as the accused manufacturers were brought to a realization that the new laws were to be enforced, they expressed a willingness to comply with them, and in most instances it is believed that they are now making an honest effort to do so. Moreover, our correspondence and inspections show that many who have not been accused are making the necessary changes in their labels and methods of manufacture.

It must be remembered, however, that the jurisdiction of the Board in this matter covers the entire State, and that the work of inspection is scarcely well begun. The appropriations for this work are wholly out of proportion to its extent. There have not been more than four inspectors in the field at any one time, and their work has been confined to taking samples of articles which there was reason to believe were not being prepared or labeled in accordance with the law; yet the State Laboratory has received more samples than could be handled.

The present quarters are too small, the number of assistants that the Board is able to employ is inadequate, and the number of inspectors not sufficient to cover any considerable part of the State within a reasonable time. The State Laboratory should be located in a building for that purpose and large enough to accommodate three times as large a working force as we now have. This building should also be the home of the Bacteriological Laboratory.

If suitable quarters were obtained, and an appropriation were made for the work large enough to enable the Board to proceed more rapidly, we firmly believe that before the date of our next report the adulteration and mislabeling of foods and drugs would be a thing of the past in California. And when the State has once been well covered, subsequently the work of keeping manufacturers up to the standard will be comparatively simple and inexpensive.

It is believed that the enforcement of these laws is a matter of vital importance to the public health, that the people are equally entitled to be protected against fraud in the labeling of products, that honest dealers and manufacturers will be materially benefited thereby, and that the confidence in the integrity of local products which will be established at home and abroad when it becomes generally known that these laws are being enforced, will itself more than compensate for the total outlay by the State.

SANITARY INSPECTION OF STATE BUILDINGS AND INSTITUTIONS.

The State Board of Health has carefully and diligently observed the sanitary conditions of the various State institutions and has, from time to time, made suggestions to the different superintendents as to needed improvements. These suggestions have been invariably received with attention and, where possible, the improvements have been made.

There are, however, many imperfections which are not the fault of the management, such as worn-out or out of date plumbing, cow stables built before the necessity of cleanliness was fully understood, and decayed wooden basement floors, under which rats find an ideal home. These, as a rule, require an appropriation by the Legislature, and recommendations have been made in dealing with the different institutions. Without an exception the different superintendents or managers have displayed both interest and judgment in the sanitary conditions of their respective institutions, and as a rule too high praise can not be given to them.

The freedom from disease and offensive odors which tell so strongly of filth and carelessness is evidence of the constant watchfulness which alone will insure good conditions.

State Capitol.

It is a satisfaction to speak of the fine condition of our State Capitol. The building is clean, well ventilated and heated, and sanitary conditions are perfect. It is an honor to the State, and is unsurpassed by any like building in the country.

State University.

The former good sanitary condition of the University has been maintained, and when all contemplated improvements are made there will be little to be desired.

California Polytechnic School, San Lúis Obispo.

The buildings are clean, orderly and tolerably well ventilated. The system of sewage disposal is bad, as it is allowed to accumulate in a slough, where it must become a nuisance. It should be cared for by conducting it on to the land and using for irrigation, or better, by distributing it beneath the surface of the ground by means of unglazed tile. The new building should have a similar system.

Institute for the Deaf and Dumb.

This institution is, as usual, clean and in a healthful condition. The location is all that could be desired, and the care given it by the superintendent makes it one of the best of our State institutions.

Industrial Home of Mechanical Trades for Adult Blind.

This institution is perhaps harder to keep in a perfectly clean and sanitary condition than any other because of the physical condition of the inmates, and the fact that there is more independence in their action. They can not be kept under the same strict regulation that is possible in the others. The buildings are old and wanting in many of the modern appliances; still, the total absence of zymotic diseases is proof that the best of care is taken.

A thorough inspection of the buildings revealed almost nothing for which the management could be criticised. The new building will be a much needed addition, as the present kitchen is small and inconvenient, and the dormitories above will be a welcome change from the crowded and poorly ventilated ones occupied by the women at the present time. The new workshop has removed a great source of danger, and its clean, safe, and healthful condition helps to put this institution on a par with others.

Veterans' Home of California.

The sanitary conditions are fair considering that the buildings are old and much of the plumbing worn-out. This was not entirely remedied by the appropriation of the last Legislature and more is needed. The inside of the dormitories needs renovating, as they have been long in use.

While an effort has been made in the past to keep the tubercular patients isolated, it was impossible entirely to do so owing to the want of a proper hospital. We recommend an appropriation for this necessary improvement.

Like other institutions with old cow barns, this is in great need of improvement. The floors and feeding troughs should be of concrete, with a milk house entirely closed from insects and dust.

The general health of the old soldiers is good, and the management is doing everything possible for their welfare.

Preston School of Industry.

There is probably no institution in the world with an equal number of inmates—328—which can show such a clean bill of health.

For eight years there has been no death and no case of contagious disease has developed, although several have been brought into the institution.

This is comment enough on the care and sanitary conditions, but it is not safe to rely entirely on the past.

The State should provide a hospital separated from the other buildings where the sick can be treated and cared for. No institution like this should be without such a hospital, for some time, in spite of care, contagious disease will gain a foothold.

We earnestly recommend that such a hospital be provided.

Whittier State School.

The conditions of this school have been improved in a great degree since the last report.

The stables and pigpens have been put in an excellent condition, so that they are no longer an offense and source of danger. A new tank for the disposal of sewage has been put in in the girls' department, thus removing a long continued nuisance.

There is much more to be done, but the superintendent and trustees are working earnestly to perfect the sanitary conditions.

State Normal School at San José.

The new buildings which the last Legislature provided for this institution are not yet constructed, and the school is conducted in the one modern structure which was left and temporary ones which were erected. These latter are one-story wooden buildings without ornamentation or extra expense, but being well ventilated and clean are, from a sanitary standpoint, unobjectionable.

Not so with the one remaining building of the old group. While the rooms above are as good as the average classroom, the basement is simply a disgrace to the State. The floor of boards laid on wooden floor timbers a few inches above the ground is fast falling to decay and affords a most excellent nesting place for rats which, during school months, abound in great numbers. The combined odor from rats, decaying wood and air confined beneath the floor is not only offensive but detrimental to health, and the constant contact with rats is a direct menace to the lives of the pupils. The toilets being located in the basement, the pupils are in constant danger of being infected with any disease the rat may have. The whole basement should be at once concreted, a procedure which would cost but a few hundred dollars, and would at once remove the danger and be an object lesson to the pupils. The State can not afford to educate the teachers of our children amid surroundings so totally at variance with sanitary science. If we entirely neglect the sanitary conditions of our school buildings, no matter how excellent the hygienic teaching may be, its effect upon the pupils will be lost. The object always before the eye will impress the young receptive mind much more than the occasional precept taught in the classroom.

Upon these teachers we must depend in a large degree for the proper dissemination of sanitary knowledge, and the State can devote a few hundred dollars to no better purpose than to cement the basement of this building. We heartily recommend and urge that this be done.

Chico State Normal School.

After a careful and thorough inspection of the Chico Normal School, we take great pleasure in reporting that from a sanitary standpoint there is little to be desired in this institution. Since the last report the Normal has been connected with the city sewer system, which is the Waring automatic flush, with the sewer farm some three miles from the city, with sufficient fall, and water to insure the proper working of same.

In the last report certain recommendations were made. One was the cementing the basement floor. This has been done, adding to the sanitary condition and appearance of the building.

After the inspection of the building we feel the State has in this institution a building that was honestly constructed, and the various appropriations have been judiciously handled and the best results have been obtained. Every part of the building from the basement floors presents a neat and clean appearance, reflecting credit on those in charge.

Los Angeles State Normal.

A new heating and ventilating plant has improved the sanitary conditions of this school and made it possible to get a certain amount of fresh air into the classrooms, which formerly could have been accomplished, if at all, only with great difficulty.

The gymnasium does much to develop the strength and vitality of the pupils, and is a strong feature of the school.

San Francisco State Normal.

This is a new institution built since the fire, and is up-to-date and in good sanitary condition.

State Normal School at San Diego.

Considering everything, there is probably no State institution that is in better sanitary condition.

Napa State Hospital.

The plumbing of this hospital has been largely installed anew and the sanitary condition thereby improved. The new reservoir is completed, and should furnish an ample supply of water. The sewer system is good.

With these three vital necessities, all that could be asked, we have a right to expect the good results reported.

Stockton State Hospital.

This is the oldest and largest of our hospitals and is situated on 100 acres of land in the city of Stockton. Many of the buildings are old and the plumbing antiquated, but this is to be remedied in a measure by appropriations made by the last Legislature. The general conditions of the hospital are excellent. The female department is in a building apart from the male, and deserves special mention. Upon entering and going through the halls and wards one is impressed that it has more of the appearance of a well regulated and kept Old Ladies' Home than an insane hospital. It is scrupulously clean, the wards having carpets through the center, pictures on the walls and potted plants on tables. The furniture is substantial, and everything has a homelike appearance. These extras which add so much to the comfort of the patients cost, including a piano, $12,000, and have been bought with money received by the sale of fancywork done by patients.

The new hydrotherapy building is being constructed and will be a valuable addition, as it is believed that many of the acute cases can be cured by early treatment with the appliances it will contain.

The ranch two miles from the hospital has a colony of workers who are doing well and are contented. This should be enlarged, and also arrangements made to care for the unclean and demented cases, as well as the tuberculous, at the ranch, where they can be kept out of doors, which is not possible in the city. This will be a direct advantage to them and a relief to the wards, which are now crowded. The milking stable is well kept, has solid concrete floor and feed trough, and is in excellent condition.

Southern California State Hospital.

Since the last biennial report, the McGonigle cottages for tuberculous patients have been erected. They are of one story, well lighted and ventilated, and have a large connecting porch, which is also connected with the nurses' cottage, where the patients can sit practically out of doors. While this is not so good as the large enclosed camp at Mendocino, where the patients can wander at will among the trees, it is far better than having the tuberculous patients in the wards, where they would surely infect others.

A new dairy barn has been provided for and the contract let for its construction. This was a much needed improvement and what all our institutions keeping cows should have.

The hospital has been unfortunate in having a severe outbreak of diphtheria during the past summer. It is not known how it originated, but as the disease was very prevalent in the surrounding country it could easily be brought in. The patients, attendants and officers were immunized and the mortality was very low. The State Board of Health took charge, putting its bacteriologist there, and examined and reëxamined the throats of all in any way connected with the hospital. A detailed account will be found in the report of the Bacteriological Department.

The general sanitary conditions are excellent, and were in no way responsible for the epidemic.

This hospital will, in a year or two, be practically a new institution, and as such should and probably will be in the best of sanitary condition. It will be of solid concrete and brick, and with good sewage and excellent water supply will require only the careful watchfulness needed by all institutions to make it perfect. It is doubtful, however, if any better health will be maintained among the inmates or a larger per cent of cures effected than in the cheap, one-story wooden barracks used since the destruction of the buildings. They are well up from the ground, leaving no place for vermin to live and breed and allow a free circulation of air. The wards are well aired and lighted, and are kept clean, so that the good health of the inmates is not surprising.

The milk house is the best of any of the hospitals and could be duplicated by all to advantage. The stables are old and have wooden floors, but are kept in as perfect shape as possible. The manure is daily removed from the vicinity of the barns, so that very few flies are in evidence. The hogpens and yards are well cared for, the pens being washed daily and the fresh water supplied in the bath tubs. The chicken yards and houses are clean and the fowls healthy. There is little at the present time that can be suggested for the betterment of the hygienic conditions.

Mendocino State Hospital.

This hospital has kept up its former reputation for healthfulness and good sanitary conditions. The water supply, while fairly good, is not adequate for the growing needs of the institution. Built for 500 inmates, it has increased to nearly 1,000, and to supply their wants and for the general purposes of the institution wells will probably have to be provided.

In each of the last two biennial reports we have recommended that a new dairy building be constructed. This is an imperative need and should be neglected no longer. There is no milk room attached to the milking stables, which are old and entirely of wood and saturated with the filth of long standing. The hay and other feed is stored in the same building, and it is impossible to keep milk clean. The dairy herd is in fine condition and is provided with good sleeping sheds, but the want of proper milking sheds and a milk house detract very much from the value of the dairy product, and we again earnestly recommend an appropriation sufficient to build suitable stables and milk house.

Two more years' experience with the outdoor Tuberculosis Camp strengthens our faith in outdoor life for those suffering from tuberculosis, and also as for those suffering from sick minds. The camp has been enlarged by the addition of new and improved buildings built so as to be a protection against the severe weather, but so that plenty of fresh air must always be present. The rapid filling up of the hospital has necessitated putting many non-tuberculous patients in the camp, which can be safely done on account of the good and abundant air and sunshine. With an outlay of about $5,000, one hundred patients are cared for in this camp, with better results to mind and body than could be had in the large wards of the hospital.

Every State hospital should have a similar outdoor ward for the tuberculous, and also where the untidy can be kept, thus saving the wards the disagreeable odors arising from the presence of this class of patients.

The hospital should have a cold storage plant and new kitchen furniture.

There are many acute cases going to our hospitals which could be cured if they received proper care and treatment at first. A receiving ward for the treatment of these cases should be built at this as well as the other hospitals, and would undoubtedly pay the cost of construction in saving of expense of long treatment of the cases that become chronic.

The California Home for Feeble-Minded Children.

The general sanitary conditions are fair. Owing to the extension of the institution to the north a new sewer system will be needed, as the other tank is too high to be of avail.

An ample supply of water, which is of such vital need at an institution like this, should be developed some way before more extensive enlargement is allowed.

A new dairy barn, with a cement floor and a milk room detached, is a valuable addition to the equipment of the home.

Pure milk is the ideal food for children and the State has no right to furnish other than pure, but with the old barn it was an impossibility.

State Prison at San Quentin.

There are at present 1,692 male prisoners and 35 female prisoners confined in this prison. The prison yard and the space between the buildings is extremely well kept. The drainage is excellent, and the whole yard is flushed with salt water (of which the prison has an abundant supply from its own pumping plant every morning). At present prisoners are housed in tiers of cells and in large dormitories in the old sash and blind building. The individual cells have been built a great many years and contain no plumbing. The plumbing in the old sash and blind building consists of water-closets and lavatories, and is very old. New quarters will soon be erected, and each cell will be supplied with running water and a water-closet. At present in the cell tiers excrement is collected in buckets, and these are emptied every morning, carefully cleansed, allowed to dry in the sun, and then a liberal supply of chloride of lime is sprinkled in them. In the cells housing five or six men, barrels are provided which have seats upon their tops. We examined a large number of these barrels and there was no odor from them. We believe the prison authorities are doing as well as they possibly could do with these poor arrangements. The excrement is dumped in a large hopper in the prison yard, which is flushed with water, and this, too, is odorless. The sewage is carried about one hundred feet out into the bay. The pipe is large and is covered with water, except at exceptionally low tide, which occurs about once a month. This pipe should certainly be extended so as to be covered with water at all times. The women's quarters are provided with satisfactory toilet facilities.

Each prisoner has his own individual drinking bucket and it bears the number of his cell. These buckets are scoured with sapolio once a week.

The bathing facilities for the prisoners are wholly inadequate. There is a large tank sunk in the cement flooring of the yard in which prisoners are obliged to bathe once a week. This is open on all sides, and in the winter time it must certainly be a hardship to take a bath under such conditions. Near this tank in the yard is a large sink divided into toilet seats and so arranged that the contents of the sink can be flushed thoroughly at all times.

There has been very little sickness at the prison, two cases of typhoid and one of pneumonia in fifteen months. There are nine cases of tuberculosis, and all tuberculous cases are isolated as soon as discovered. The patients in the hospital receive excellent treatment and fare.

Large cuspidors are provided in the dormitories, and an endeavor made to keep the floors clean. The cuspidors are filled with creolin, and the penalty for spitting on the floor is severe. The sanitary conditions, we should say, are as good as the construction of the old prison will allow, with the exception of the bathing facilities.

The arrangements for ventilation in the cells is very far from being satisfactory. Air enters from small apertures in the steel doors and makes its exit through ventilators placed in the ceiling and back walls, and the prisoners complain that there is a constant draught when the wind is blowing.

State Prison, Folsom.

There is little to suggest here, except that its popularity seems too great, as there is too much crowding inside the walls.

While the cells and rooms are kept as clean as possible, it is not well to have inmates crowded together. The general health is good and the building clean.

Respectfully submitted.

MARTIN REGENSBURGER, M.D.,
President,
W. A. BRIGGS, M.D.,
Vice-President,
N. K. FOSTER,
Secretary,
F. K. AINSWORTH, M.D.,
A. C. HART, M.D.,
O. STANSBURY, M.D.,
W. LE MOYNE WILLS, M.D.,
State Board of Health.

FINANCIAL STATEMENTS.

FUND FOR TRAVELING AND CONTINGENT EXPENSES.

Statement Showing Condition of Appropriation for Traveling and Contingent Expenses of State Board of Health for Fifty-eighth and Fifty-ninth Fiscal Years.

Fifty-eighth Fiscal Year.

By amount appropriated	$2,500 00
By balance, etc.	279 97
	$2,779 97

To warrants drawn in favor of State Board of Health, as follows:

No.	Date—1906.	Amount.
669	July 17	$78 45
1012	July 31	144 65
1794	Aug. 8	27 10
2148	Aug. 21	153 96
2366	Aug. 30	30 80
2380	Aug. 31	90 00
3215	Sept. 12	16 35
3443	Sept. 17	59 55
3949	Sept. 29	110 45
4479	Oct. 11	19 80
5083	Oct. 31	184 85
5829	Nov. 24	20 20
6253	Nov. 30	125 00
6836	Dec. 14	102 46
7132	Dec. 31	107 21
	1907.	
7687	Jan. 3	8 56
8904	Jan. 15	111 20
11143	Jan. 31	98 00
13204	Feb. 9	28 00
15382	Mar. 1	125 40
16503	Mar. 5	16 50
18168	Mar. 25	59 40
18247	Mar. 28	20 85
19374	April 11	33 20
19695	April 24	50 15
20156	April 30	40 60
20828	May 15	189 90
20906	May 18	25 35
20969	May 21	183 50
21791	June 7	25 00
22140	June 21	215 15
181*	July 2	266 72
619*	July 13	11 63
		$2,779 94
Balance		03
		$2,779 97

Fifty-ninth Fiscal Year.

By amount appropriated	$2,500 00

No.	Date—1907.	Amount.
560	July 11	$26 85
723	July 19	45 50
1606	Aug. 5	215 40
2104	Aug. 15	84 07
3509	Sept. 4	31 40
3172	Sept. 11	22 77
3438	Sept. 19	84 70
3627	Sept. 28	54 20
4403	Oct. 8	44 85
4777	Oct. 25	63 70
5545	Nov. 2	21 75
5792	Nov. 12	56 89
5793	Nov. 12	92 54
6452	Nov. 26	17 75
7697	Dec. 14	124 15
	1908.	
8768	Jan. 3	19 70
9089	Jan. 14	77 80
10238	Feb. 4	61 65
10412	Feb. 6	50 85
11380	Feb. 29	89 60
11707	Mar. 5	29 10
12071	Mar. 17	72 30
12716	Mar. 31	42 75
13149	April 8	41 90
14124	April 30	13 47
14820	May 19	48 98
14938	May 22	86 50
15428	May 29	56 65
16184	June 27	197 15
254†	July 2	15 50
512†	July 10	18 05
3005†	Sept. 4	6 80
		$1,915 27
To balance		584 73
		$2,500 00

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*Contracted in the fifty-eighth fiscal year, and paid in the fifty-ninth fiscal year from funds of the fifty-eighth fiscal year.

†Contracted in the fifty-ninth, and paid in the sixtieth fiscal year from funds of the fifty-ninth fiscal year.

CONTAGIOUS DISEASE FUND.

Statement Showing Condition of Appropriation for Prevention of Contagious Diseases.

FIFTY-EIGHTH FISCAL YEAR.

By balance of appropriation of March 20, 1903		$70,692 46
To warrants drawn as follows:		
No.	Date—1906.	Amount.
261	July 10	$53 50
3615	Sept. 28	50 15
5488	Nov. 10	15 35
6546	Dec. 4	33 10
	1907.	
7916	Jan. 9	266 40
10811	Jan. 29	57 00
20159	April 30	50 00
20960	May 21	40 50
		$566 00
To balance		70,126 46
		$70,692 46

FIFTY-NINTH FISCAL YEAR.

By balance of appropriation of March 20, 1903		$70.126 46
To warrants drawn as follows:		
No.	Date—1907.	Amount.
1577	Aug. 5	$9 78
2412	Aug. 29	43 55
3594	Sept. 26	107 70
3628	Sept. 28	75 00
5685	Nov. 7	548 70
6056	Nov. 21	108 34
6842	Nov. 30	836 60
7814	Dec. 17	80 15
8694	Dec. 31	1,186 75
	1908.	
8770	Jan. 3	117 64
10226	Feb. 4	1,742 88
10420	Feb. 6	32 83
10716	Feb. 13	192 25
11379	Feb. 29	1,910 00
11920	Mar. 13	42 85
12264	Mar. 24	51 30
12762	Mar. 31	1,691 50
13146	April 8	62 55
13622	April 24	20 28
13627	April 24	1,688 40
14616	May 6	244 30
14699	May 14	29 20
14943	May 22	59 15
15430	May 29	1,661 75
16565	June 30	1,065 95
		$13.609 50
To balance		56.516 96
		$70,126 46

TUBERCULOSIS FUND.

Statement Showing Condition of Appropriation for the Dissemination of Knowledge as to the Best Means of Preventing the Spread of Tuberculosis.

FIFTY-NINTH FISCAL YEAR.

By amount appropriated		$2,000 00
To warrants drawn as follows:		
No.	Date—1908.	Amount.
10717	Feb. 13	$40 10
12309	Mar. 26	74 19
13147	April 8	48 60
13522	April 22	15 80
14615	May 6	179 90
14819	May 19	56 13
15035	May 26	137 84
		$552 56
To balance		1,447 44
		$2,000 00

BACTERIOLOGICAL LABORATORY FUND.

Statement Showing the Condition of the Appropriation for the State Bacteriological Laboratory.

FIFTY-NINTH FISCAL YEAR.

By amount appropriated			$2,000 00
To warrants drawn as follows:			
No.	Date—1907.		Amount.
5897	Nov.	12	$465 07
7700	Dec.	14	224 01
	1908.		
10224	Feb.	4	124 37
10843	Feb.	19	221 12
12063	Mar.	17	118 93
12310	Mar.	26	192 98
13148	April	8	67 78
14514	May	6	203 13
601*	July	13	173 40
3144*	Sept.	11	208 21
			$2,000 00

PURE FOOD AND DRUG FUND.

Statement Showing Condition of Appropriation for Preventing the Manufacture, Sale or Transportation of Adulterated, Mislabeled or Misbranded Foods, Liquors, and Drugs.

FIFTY-NINTH FISCAL YEAR.

By amount appropriated			$10,000 00
To warrants drawn as follows:			
No.	Date—1908.		Amount.
9400	Jan.	21	$620 95
10225	Feb.	4	1,042 62
10428	Feb.	6	205 20
10714	Feb.	13	53 90
11378	Feb.	29	912 35
12064	Mar.	17	109 25
12717	Mar.	31	865 23
14123	April	30	424 25
14517	May	6	308 25
14818	May	19	451 75
15429	May	29	209 60
15642	June	3	295 36
16564	June	30	648 08
			$6,146 79
To balance			3,853 21
			$10,000 00

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*Contracted in fifty-ninth fiscal year, and paid in the sixtieth fiscal year from funds of the fifty-ninth fiscal year.

PRINTING FUND.

Statement Showing Amount of Printing Done for State Board of Health During the Fifty-eighth Fiscal Year.

SUMMARY.

FIFTY-EIGHTH FISCAL YEAR.

Balance from fifty-seventh fiscal year	$1,235 50
Additional appropriation	200 00
	$1,435 50
Printing fifty-eighth fiscal year	1,435 50

FIFTY-NINTH FISCAL YEAR.

Appropriation fifty-ninth and sixtieth fiscal years	$3,000 00
Printing fifty-ninth fiscal year	751 25
Balance to sixtieth fiscal year	$2,248 75

FIFTY-EIGHTH FISCAL YEAR.

1906. July—			
No. 4364—3,000	Marriage Certificates	$9 50	
4685—1,000	Monthly Bulletins for June	25 00	
			$34 50
August—			
4825—1,000	Monthly Bulletins for July	$33 25	33 25
September—			
4984— 150	Programs	1 50	1 50
October—			
4983—1,000	Monthly Bulletins for August	29 50	
9452—1,200	Biennial Reports, 1904-06	857 50	
5108—1,000	Monthly Bulletins for September	31 00	
			918 00
November—			
5249—1,500	Letter Heads, Typewriter	$4 25	
5310—1,000	Monthly Bulletins for October	45 50	
			49 75
December—			
5474—1,000	Monthly Bulletins for November	$34 25	
5481—1,000	Addenda Report	3 75	
			38 00
1907. January—			
No. 5396— 30	Death Certificates. Binding	$30 00	
5847—1,000	Monthly Bulletins for December	33 00	
			63 00
February—			
6080—2,000	Letter Heads, Typewriter (furnished)	$4 00	
6224—1,000	Monthly Bulletins for January	33 75	
			37 75
March—			
6437—1,000	"No Death" Reports	$4 50	
6589—1,200	Monthly Bulletins for February	33 75	
			38 25
April—			
6743— 300	Programs	$3 25	
6825—1,200	Monthly Bulletins for March	33 75	
			37 00
May—			
6738—1,000	Miscellaneous Chapters	$52 00	
7034—1,200	Monthly Bulletins for April	25 00	
			77 00
June—			
7270—1,200	Monthly Bulletins for May	$25 00	
7261—2,500	Letter Heads, Typewriter	9 75	
7262—1,000	Letter Heads, ½, Typewriter	3 75	
7037— 63	Marriage Certificates. Binding	63 00	
7264—1,000	Envelopes No. 10	6 00	
			107 50
			$1,435 50

PRINTING FUND—*Continued.*

FIFTY-NINTH FISCAL YEAR.

1907. July—			
No. 7260—2,000	Letter Heads, Typewriter	$8 00	
7462—1,000	Envelopes, No. 6¼	4 00	
7502—1,200	Monthly Bulletins for June	25 00	
7506—1,000	Circular Letter	4 50	
7508—1,000	Geographic Division Tables	15 00	
			$56 50
August—			
7650—1,200	Monthly Bulletins for July	$28 50	
7670—2,000	Original Death Certificates	9 00	
			37 50
September—			
7705— 500	Plague Case Reports	$4 00	
7711—3,000	Envelopes, Nos. 6¼-10	12 50	
7712—4,000	Letter Heads and one half, Typewriter	15 00	
7759—1,000	Form No. 18	12 00	
7785—1,200	Monthly Bulletins for August	29 00	
			72 50
October—			
7885—1,200	Monthly Bulletins for September	$24 50	
7917— 100	Ledger Paper	1 50	
			26 00
November—			
7918— 32	Marriage Certificates. Binding	$32 00	
7951— 45	Death Certificates. Binding	45 00	
8067—1,200	Monthly Bulletins for October	30 00	
			107 00
December—			
8091— 21	Death Certificates. Binding	$21 00	
8172—1,000	Envelopes, No. 6¼	4 00	
8195— 250	Circular Letter	5 50	
8226—1,200	Monthly Bulletins	33 00	
			63 50
1908. January—			
8208— 500	County Tables	$21 00	
8209— 500	City Tables	21 00	
8235— 5	Certified Copy Record Books	6 50	
8284—2,000	Registration Fees for Accounts	21 00	
8295— 500	Circular Letter	6 25	
8335—1,000	Inspectors Certificates	4 25	
8353— 300	Circular Letter	3 25	
			83 25
February—			
8413—2,000	Envelopes, No. 6¾	$6 50	
8443—1,000	Circular Letter	7 50	
8459— 250	Envelopes, No. 6¼, reg.	2 25	
8503—2,000	Envelopes, No. 9	9 25	
8530—1,500	Monthly Bulletins for January	46 50	
			72 00
March—			
8465— 66	Birth Certificates. Binding	$66 00	
8590— 800	Postal Cards	5 50	
8633— 10	Fumigation Certificates. Books	6 25	
8682— 2	Bulletins. Binding	2 75	
8703—1,000	Circular Letter	4 50	
8704—5,000	Certificates of Inspecting Remains	7 75	
8702— 500	Vouchers (2)	8 50	
			101 25
April—			
8727— 36	Marriage Certificates. Binding	$36 00	
8796— 100	Programs	5 00	
			41 00
May—			
8894—1,000	"No Death" Reports	$5 00	5 00
June—			
8977— 250	Circular Letter	5 00	
8984—5,000	Letter Heads, and one half, Typewriter	15 50	
9024—1,000	Letter Heads, Typewriter	5 00	
9025—1,000	Envelopes, No. 6¾	3 75	
9073—1,700	Monthly Bulletins for May	56 50	
			85 75
			$751 25

VITAL STATISTICS

FOR CALENDAR YEARS 1907 AND 1906

[NOTE.—The vital statistics are presented for calendar, instead of fiscal years, to correspond with the annual mortality reports of the Federal Census Bureau.]

DEPARTMENT OF VITAL STATISTICS.

GEORGE D. LESLIE, STATISTICIAN.

STATISTICS OF BIRTHS: 1907 AND 1906.

SUMMARY.

Increase.—The births registered in California numbered 24,674 for 1907, against 20,974 for 1906, an increase of 3,700, or 17.6 per cent, partly due to improved registration.

The per cent of increase was 18.6 for the counties north of Tehachapi, as compared with 15.6 for those to the south.

For the metropolitan area, comprising San Francisco and the other bay counties, the rate of gain was as great as 34.0, and for Los Angeles County it was 21.9, the per cents of increase being much less for other groups of counties.

Of the individual counties, thirty-four showed increases in births. two no change, and twenty-one showed decreases.

The increases were above the State average, 17.6 per cent, in the following twenty counties: Humboldt, Mariposa, Mono, Sutter, Contra Costa, Ventura, Colusa, Inyo, Lake, Trinity, Alameda, Shasta, San Mateo, San Francisco, Tehama, Monterey, Los Angeles, Merced, Lassen, and Marin.

The rate of gain was 18.4 for the nineteen freeholders' charter cities and 16.5 for all the rest of the State.

The cities showing increases in births were as follows, in descending order: San Bernardino, Berkeley, San Francisco, Pasadena, San Diego, Santa Cruz, Sacramento, Oakland, Stockton, Salinas, Los Angeles, Santa Rosa, Napa, and Fresno.

Comparison of the ranking of the leading counties in births registered shows gains for the following counties: Sacramento, Riverside, Santa Cruz, Tulare, Monterey, Contra Costa, San Mateo, San Luis Obispo, Mendocino, Shasta, Ventura, and Humboldt.

In the comparative ranking of cities there were also rises in rank for Berkeley, Sacramento, Pasadena, San Bernardino, Santa Cruz, Watsonville, and Napa.

Altogether 60.3 per cent of the births registered in California in 1906 were in nineteen freeholders' charter cities, and 64.0 per cent of the State total for 1907 were in the twenty-four cities of this class reporting births that year.

Birth-rates.—For an estimated State population of 2,001,193 in 1907, the 24,674 births give a rate of 12.3, and for an estimated population of 1,882,846 in 1906 the 20,974 births give a rate of 11.1 per 1,000 inhabitants.

The birth-rates in 1907 and 1906, respectively, were 16.1 and 15.7 for the counties south of Tehachapi, as compared with only 11.1 and 9.8 for those to the north.

The individual counties with birth-rates above the State averages each year were: Fresno, Los Angeles, San Mateo, San Bernardino, Lake, Tulare, Santa Clara, Riverside, Stanislaus, Butte, Santa Barbara, Madera, Santa Cruz, and Marin.

The twenty-four freeholders' charter cities reporting births in 1907 had an estimated population of 1,144,630, and the nineteen in 1906 had a population of 1,044,063. The births for these cities totaled 15,786 in 1907 and 12,654 in 1906, so that the birth-rates were 13.8 and 12.1, respectively.

For the rest of the State, with an estimated population of 856,563 in 1907 and 838,783 in 1906, the births numbered 8,888 and 8,320, and the rates were only 10.4 and 9.9.

The birth-rates were above the general averages for cities each year for Long Beach, Santa Cruz, Pasadena, Fresno, San Bernardino, Berkeley, Santa Rosa, Napa, Watsonville, Alameda, Santa Barbara, San Diego, Santa Monica, Los Angeles, Vallejo, San José, Grass Valley, and Salinas.

General Birth Statistics.—The 24,674 babies in 1907 included 12,645 boys and 12,029 girls, while of the 20,974 in 1906, 10,926 were male and 10,048 female. The per cent male was only 51.2 for 1907 against 52.1 for 1906, the general excess of male births being less marked in the last year covered than in the one before.

The per cent male was 51.4 for births in the twenty-four freeholders' charter cities in 1907 and 51.9 for the nineteen such cities in 1906. For the rest of California the per cent male was 51.0 in 1907 and 52.3 in 1906.

The race distribution of births in 1907 was: White, 24,097; Japanese, 221; negro, 179; Chinese, 155; and Indian, 22. For 1906 the figures were: White, 20,632; Japanese, 134; Chinese, 116; negro, 82; and Indian, 10. The per cent white was 97.7 for 1907, as compared with 98.4 for 1906.

For freeholders' charter cities the per cent white was 97.3 in 1907 and 98.1 in 1906, while for the rest of the State the per cents white were 98.4 and 98.8, respectively.

The preponderance of males is much greater, both within cities and outside them, among the few non-Caucasian babies than among the white infants constituting the great bulk of all.

The nativity of the white mothers in 1907 was: Born in other states, 9,206, or 38.2 per cent; born in California, 8,449, or 35.1 per cent; and foreign born, 6,442, or 26.7 per cent. The figures for 1906 were: Other states, 7,811, or 37.8 per cent; California, 7,482, or 36.3 per cent; and foreign, 5,339, or 25.9 per cent.

For cities the per cent of mothers born in other states was 37.5 in 1907 and 37.4 in 1906; the per cents born in California were 32.5 and 32.8; and the per cents foreign born were 30.0 and 29.8. For the rural districts the per cents in 1907 and 1906 were, respectively: California, 39.6 and 41.6; other states, 39.3 and 38.5; and foreign, 21.1 and 19.9.

Within cities more mothers were born in other states than in California, but outside cities more mothers were born in the Golden State than elsewhere in the United States.

Nativity of Brides and Mothers.—Comparison of the per cent distribution of white brides and mothers, by nativity, shows that throughout California a larger proportion of the brides than of the mothers were born in the Golden State. In general, too, a somewhat larger proportion of the brides than of the mothers were born elsewhere in the United States. On the other hand, a much larger proportion of the mothers in California than of the brides were foreign born.

Similarly, a much larger proportion of the single brides than of the mothers in California were native daughters. However, slightly more of the mothers than of the single brides in this State were natives of other states, and very many more of the women bearing children than of the single brides in California were born in foreign countries.

It seems, therefore, that in California, as elsewhere in the United States, the fecundity of foreign-born women is greater than that of native women, whether born in California or other states.

INCREASE OF BIRTHS: 1906 TO 1907.

Geographic Divisions.—Exclusive of stillbirths, altogether 24,674 births were registered in 1907 and 20,974 in 1906, under the law of 1905 requiring physicians to file certificates with County Recorders and City Health Officers for transmittal to the State Bureau of Vital Statistics. The increase of births for 1907 over 1906 was 3,700, or 17.6 per cent, part of the gain being due to more complete registration.

The births registered in the counties north of Tehachapi totaled 16,752 for 1907, against 14,121 for 1906, a gain of 2,631, or 18.6 per cent. The totals for Southern California were 7,922 in 1907 and 6,853 in 1906, an increase of 1,069, or 15.6 per cent.

The per cent of increase was no less than 30.7 for San Francisco and 38.4 for the other bay counties, or 34.0 for the metropolitan area, against 4.5 for the rural counties north of Tehachapi. Similarly, the rate of gain was 21.9 for Los Angeles, but only 1.2 for the other counties of Southern California.

Further details appear in the table on the next page giving the number and per cent of increase in births for the several geographic divisions of the State, in 1906 to 1907:

TABLE 1.—*Increase of Births, for Geographic Divisions: 1906 to 1907.*

GEOGRAPHIC DIVISION.	Births.		Increase.	
	1907.	1906.	Number.	Per Cent.
THE STATE	24,674	20,974	3,700	17.6
Northern California	2,405	2,232	173	7.8
Coast counties	953	824	129	15.7
Interior counties	1,452	1,408	44	3.1
Central California	14,347	11,889	2,458	20.7
San Francisco	5,128	3,923	1,205	30.7
Other bay counties	3,944	2,849	1,095	38.4
Coast counties	1,924	1,831	93	5.1
Interior counties	3,351	3,286	65	2.0
Southern California	7,922	6,853	1,069	15.6
Los Angeles	5,823	4,778	1,045	21.9
Other counties	2,099	2,075	24	1.2
Northern and Central California	16,752	14,121	2,631	18.6
Coast counties	11,949	9,427	2,522	26.8
Interior counties	4,803	4,694	109	2.3
Metropolitan area	9,072	6,772	2,300	34.0
Rural counties	7,680	7,349	331	4.5

Counties.—The table on the following page gives the increase (or decrease) of births for each county, as well as the per cent of increase for those showing gains in 1907 over 1906.

The apparently high rate of gain shown for Humboldt County is explained by the incompleteness of the returns for 1906, while the high rates for Mariposa and Mono counties are unimportant on account of the very small totals each year.

The per cents of increase were highest for the following counties: Sutter, 80.4; Contra Costa, 61.7; Ventura, 53.8; Colusa, 46.7; Inyo, 45.5; Lake, 44.3; Trinity, 40.0; Alameda, 38.8; Shasta, 33.8; San Mateo, 32.2; San Francisco, 30.7; Tehama, 30.6; Monterey, 25.6; Los Angeles, 21.9; Merced, 21.2; Lassen, 19.4; and Marin, 19.2. Each of these seventeen counties shows a rate of gain above the average rate for the State, 17.6 per cent.

There were also increases in births, but at rates below the State average, in the following fourteen counties, arranged in descending order: Madera, 16.1; San Diego, 15.1; Amador, 14.8; Sacramento, 13.4; Fresno, 9.6; Kings, 8.8; San Bernardino, 8.6; San Luis Obispo, 7.7; Yuba, 4.2; Glenn, 3.7; Santa Clara, 3.5; Napa, 2.2; Sonoma, 1.6; and Solano, 0.4. For Alpine and Calaveras counties exactly the same number of births were reported in 1907 as in 1906.

TABLE 2.—*Increase of Births, for Counties: 1906 to 1907.*

COUNTY.	Births.		Increase.	Decrease.	Per Cent of Increase.
	1907.	1906.			
CALIFORNIA	24,674	20,974	3,700	....	17.6
Alameda	3,181	2,292	889	....	38.8
Alpine	6	6	....	....	....
Amador	62	54	8	....	14.8
Butte	246	257	....	11	....
Calaveras	95	95	....	....	....
Colusa	88	60	28	....	46.7
Contra Costa	291	180	111	....	61.7
Del Norte	27	30	....	3	....
El Dorado	81	122	....	41	....
Fresno	891	813	78	....	9.6
Glenn	28	27	1	....	3.7
Humboldt	139	45	94	....	208.9
Inyo	16	11	5	....	45.5
Kern	144	169	....	25	....
Kings	136	125	11	....	8.8
Lake	101	70	31	....	44.3
Lassen	43	36	7	....	19.4
Los Angeles	5,823	4,778	1,045	....	21.9
Madera	108	93	15	....	16.1
Marin	242	203	39	....	19.2
Mariposa	14	6	8	....	133.3
Mendocino	151	157	....	6	....
Merced	63	52	11	....	21.2
Modoc	60	70	....	10	....
Mono	2	1	1	....	100.0
Monterey	270	215	55	....	25.6
Napa	139	136	3	....	2.2
Nevada	221	255	....	34	....
Orange	290	343	....	53	....
Placer	65	75	....	10	....
Plumas	31	36	....	5	....
Riverside	333	356	....	23	....
Sacramento	574	506	68	....	13.4
San Benito	42	50	....	8	....
San Bernardino	553	509	44	....	8.6
San Diego	480*	417	63	....	15.1
San Francisco	5,128	3,923	1,205	....	30.7
San Joaquin	405	408	....	3	....
San Luis Obispo	181	168	13	....	7.7
San Mateo	230	174	56	....	32.2
Santa Barbara	300	357	....	57	....
Santa Clara	1,106	1,069	37	....	3.5
Santa Cruz	325	329	....	4	....
Shasta	210	157	53	....	33.8
Sierra	29	48	....	19	....
Siskiyou	171	193	....	22	....
Solano	264	263	1	....	0.4
Sonoma	382	376	6	....	1.6
Stanislaus	151	165	....	14	....
Sutter	92	51	41	....	80.4
Tehama	94	72	22	....	30.6
Trinity	14	10	4	....	40.0
Tulare	295	318	....	18	....
Tuolumne	3	11	....	8	....
Ventura	143	93	50	....	53.8
Yolo	41	73	....	32	....
Yuba	74	71	3	....	4.2

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* Includes 6 births in Imperial County, formed August 15, 1907.

According to the registration, there were decreases in births for 1907, as compared with 1906, in the following twenty-one counties arranged alphabetically: Butte, Del Norte, El Dorado, Kern, Mendocino, Modoc, Nevada, Orange, Placer, Plumas, Riverside, San Benito, San Joaquin, Santa Barbara, Santa Cruz, Sierra, Siskiyou, Stanislaus, Tulare, Tuolumne, and Yolo. In some cases the decreases were considerable, indicating the failure of physicians to register births and the neglect of officials to enforce the law.

Cities.—The County Recorder is ex officio local registrar of births, except that in cities having freeholders' charters the Health Officer so acts. Returns are therefore available only for cities with freeholders' charters, and a comparison between 1907 and 1906 must necessarily be limited to the cities reporting births for both years. The table on the following page shows the increase (or decrease) of births in 1906 to 1907 for freeholders' charter cities and for the rural parts of the counties containing them.

In the nineteen freeholders' charter cities reporting births both years, there were 14,985 births in 1907 and 12,654 in 1906, an increase of 2,331, or 18.4 per cent. In all the rest of the State the number of births registered was 9,689 for 1907 and 8,320 for 1906, a gain of 1,369, or 16.5 per cent.

The per cent of increase was 26.7 for the rural parts of the fifteen counties with freeholders' charter cities. The rates of gain range as follows for the rural parts of the counties mentioned: Alameda, 141.3; Los Angeles, 81.3; Monterey, 29.6; Fresno, 17.6; Santa Clara, 6.2; and Solano, 1.8. There were decreases in births, according to the registration, in the rural parts of the following nine counties: Napa, Nevada, Sacramento, San Bernardino, San Diego, San Joaquin, Santa Barbara, Santa Cruz, and Sonoma. In these cases, as in counties without any freeholders' charter cities, the County Recorders are the officials held directly responsible for the enforcement of the law.

The per cents of increase in births were as follows for freeholders' charter cities: San Bernardino, 41.4; Berkeley, 34.2; San Francisco, 30.7; Pasadena, 27.2; San Diego, 26.2; Santa Cruz, 24.7; Sacramento, 23.5; Oakland, 16.8; Stockton, 14.4; Salinas, 13.2; Los Angeles, 11.1; Santa Rosa, 9.5; Napa, 6.8; and Fresno, 0.5. The registration showed decreases in births for the following five cities: Grass Valley, San José, Santa Barbara, Vallejo, and Watsonville. Here the City Health Officers are charged with the duty of enforcing the registration law upon their fellow physicians.

TABLE 3.—*Increase of Births, for Cities: 1906 to 1907.*

CITY.	Births.		In-crease.	De-crease.	Per Cent of In-crease.
	1907.	1906.			
19 FREEHOLDERS' CHARTER CITIES	14,985	12,654	2,331		18.4
RURAL PARTS OF 15 COUNTIES	5,057	3,992	1,065		26.7
RURAL PART OF STATE	9,689	8,320	1,369		16.5
Alameda County*	847	351	496		141.3
Berkeley town	510	380	130		34.2
Oakland city	1,824	1,561	263		16.8
Fresno County*	507	431	76		17.6
Fresno city	384	382	2		0.5
Los Angeles County*	1,182	652	530		81.3
Los Angeles city	4,201	3,780	421		11.1
Pasadena city	440	346	94		27.2
Monterey County*	210	162	48		29.6
Salinas city	60	53	7		13.2
Napa County*	61	63		2	
Napa city	78	73	5		6.8
Nevada County*	144	146		2	
Grass Valley city	77	109		32	
Sacramento County*	132	148		16	
Sacramento city	442	358	84		23.5
San Bernardino County*	365	376		11	
San Bernardino city	188	133	55		41.4
San Diego County*	148†	154		6	
San Diego city	332	263	69		26.2
San Francisco (City and County)	5,128	3,923	1,205		30.7
San Joaquin County*	174	206		32	
Stockton city	231	202	29		14.4
Santa Barbara County*	171	184		13	
Santa Barbara city	129	173		44	
Santa Clara County*	724	682	42		6.2
San José city	382	387		5	
Santa Cruz County*	57	96		39	
Santa Cruz city	182	146	36		24.7
Watsonville city	86	87		1	
Solano County*	115	113	2		1.8
Vallejo city	149	150		1	
Sonoma County*	220	228		8	
Santa Rosa city	162	148	14		9.5

*Figures are for county exclusive of freeholders' charter city or cities.

†Includes 6 births in Imperial County, formed August 15, 1907.

County Totals.—The table below shows the counties for which at least 100 births were reported to the State Bureau of Vital Statistics in 1907 and 1906, respectively:

TABLE 4.—*Rank of Counties with at least 100 Births: 1907 and 1906.*

1907.			1906.		
Rank.	County.	Births.	Rank.	County.	Births.
	THE STATE	24,674		THE STATE	20,974
1.	Los Angeles	5,823	1.	Los Angeles	4,778
2.	San Francisco	5,128	2.	San Francisco	3,923
3.	Alameda	3,181	3.	Alameda	2,292
4.	Santa Clara	1,106	4.	Santa Clara	1,069
5.	Fresno	891	5.	Fresno	813
6.	Sacramento	574	6.	San Bernardino	509
7.	San Bernardino	553	7.	Sacramento	506
8.	San Diego	*480	8.	San Diego	417
9.	San Joaquin	405	9.	San Joaquin	408
10.	Sonoma	382	10.	Sonoma	376
11.	Riverside	333	11.	Santa Barbara	357
12.	Santa Cruz	325	12.	Riverside	356
13.	Santa Barbara	300	13.	Orange	343
14.	Tulare	295	14.	Santa Cruz	329
15.	Contra Costa	291	15.	Tulare	313
16.	Orange	290	16.	Solano	263
17.	Monterey	270	17.	Butte	257
18.	Solano	264	18.	Nevada	255
19.	Butte	246	19.	Monterey	215
20.	Marin	242	20.	Marin	203
21.	San Mateo	230	21.	Siskiyou	193
22.	Nevada	221	22.	Contra Costa	180
23.	Shasta	210	23.	San Mateo	174
24.	San Luis Obispo	181	24.	Kern	169
25.	Siskiyou	171	25.	San Luis Obispo	168
26.	Mendocino	151	26.	Stanislaus	165
27.	Stanislaus	151	27.	Mendocino	157
28.	Kern	144	28.	Shasta	157
29.	Ventura	143	29.	Napa	136
30.	Humboldt	139	30.	Kings	125
31.	Napa	139	31.	El Dorado	122
32.	Kings	136		Remaining 26 counties	1,246
33.	Madera	108			
34.	Lake	101			
	Remaining 23 counties	1,070			

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* Includes 6 births in Imperial County, formed August 15, 1907.

There were thirty-one counties with at least 100 births registered in 1906 and thirty-four in 1907, El Dorado dropping out and Ventura, Humboldt, Madera, and Lake entering the list. Similarly, while there were only twenty counties reporting at least 200 births for 1906, there were twenty-three reporting this number for 1907, the additional counties being Contra Costa, San Mateo, and Shasta. On the other hand, there were fifteen counties reporting 300 births for 1906, but only thirteen for 1907, Orange and Tulare falling below this limit.

Comparison of the ranking of counties in the number of births registered shows gains in certain cases. Thus, Sacramento supplanted San Bernardino in sixth place in the ranking, while Riverside rose from twelfth place to eleventh, Santa Cruz from fourteenth to twelfth, Tulare from fifteenth to fourteenth, and Monterey from nineteenth to seventeenth. Contra Costa County rose from twenty-second place to fifteenth, passing Orange, Solano, Butte, Nevada, Monterey, Marin, and

Siskiyou. San Mateo County rose from twenty-third place to twenty-first, San Luis Obispo from twenty-fifth to twenty-fourth, Mendocino from twenty-seventh to twenty-sixth, and Shasta from twenty-eighth to twenty-third. Ventura and Humboldt counties rose from below thirty-first place to twenty-ninth and thirtieth, respectively.

City Totals.—The following table gives the comparative ranking of the nineteen freeholders' charter cities reporting births for 1907 and 1906, as well as the supplemental ranking of the five additional cities of this class reporting births for 1907 alone (Alameda, Long Beach, Riverside, Eureka, and Santa Monica):

TABLE 5.—*Rank of Cities reporting Births: 1907 and 1906.*

1907.			1906.		
Rank.	City.	Births.	Rank.	City.	Births.
	19 FREEHOLDERS' CHARTER CITIES	14,985		19 FREEHOLDERS' CHARTER CITIES	12,654
1.	San Francisco	5,128	1.	San Francisco	3,923
2.	Los Angeles	4,201	2.	Los Angeles	3,780
3.	Oakland	1,824	3.	Oakland	1,561
4.	Berkeley	510	4.	San José	387
5.	Sacramento	442	5.	Fresno	382
6.	Pasadena	440	6.	Berkeley	380
7.	Fresno	384	7.	Sacramento	358
8.	San José	382	8.	Pasadena	346
9.	San Diego	332	9.	San Diego	283
10.	Stockton	231	10.	Stockton	202
11.	San Bernardino	188	11.	Santa Barbara	173
12.	Santa Cruz	182	12.	Vallejo	150
13.	Santa Rosa	162	13.	Santa Rosa	148
14.	Vallejo	149	14.	Santa Cruz	146
15.	Santa Barbara	129	15.	San Bernardino	133
16.	Watsonville	86	16.	Grass Valley	109
17.	Napa	78	17.	Watsonville	87
18.	Grass Valley	77	18.	Napa	73
19.	Salinas	60	19.	Salinas	53
	5 additional freeholders' charter cities reporting births for 1907 alone	801			
a.	Alameda	378			
b.	Long Beach	158			
c.	Riverside	105			
d.	Eureka	90			
e.	Santa Monica	70			

Berkeley, Sacramento, and Pasadena rose from rank 6, 7, and 8, respectively, in 1906, to 4, 5, and 6 in 1907, passing San José and Fresno. San Bernardino rose from fifteenth place in the ranking to eleventh, passing Santa Barbara, Vallejo, Santa Rosa, and Santa Cruz. At the same time Santa Cruz rose from fourteenth place to twelfth, passing Santa Barbara, Vallejo, and Santa Rosa. Watsonville and Napa rose from rank 17 and 18, respectively, in 1906, to 16 and 17 in 1907, passing Grass Valley.

It may be noted that the 12,654 births in the nineteen freeholders' charter cities in 1906 form 60.3 per cent of the 20,974 births registered in the whole State, and that the 14,985 births in these same cities in 1907 form 60.7 per cent of the 24,674 births registered in California. Including the five additional cities reporting births for 1907 alone, the twenty-four freeholders' charter cities reported 15,786 births, or 64.0 per cent of the State total.

BIRTH-RATES: 1907 AND 1906.

Geographic Divisions.—In order to calculate rates the population of California has been estimated conservatively according to the Census Bureau method by adding to the population in 1900 six tenths of the increase between 1890 and 1900 for 1906 and seven tenths for 1907, except that for the few counties (or cities) showing decreases between the last two Federal censuses the population in 1900 has been taken for both 1906 and 1907, and that for the three principal cities arbitrary estimates have been made because of their exceptional conditions of growth. The estimates were 450,000 for San Francisco and 200,000 for Oakland each year, while the estimates for Los Angeles were 250,000 for 1907 and 200,000 for 1906, the estimates for San Francisco and Oakland being unchanged for 1907 because of possible overestimates for 1906. Although the Census Bureau method of estimating population, even with the modifications made in the California Bureau of Vital Statistics, does not give very satisfactory results for individual counties or cities that may have grown rapidly since 1900, yet underestimates for some places are offset by possible overestimates for others, so that the estimated population is fairly accurate for geographic divisions and for the entire State.

The following table shows the population as estimated by the method already explained, the births, and the birth-rates per 1,000 population for counties arranged geographically in both 1907 and 1906:

TABLE 6.—*Estimated Population, Births, and Birth-rate per 1,000 Population, for Counties arranged Geographically: 1907 and 1906.*

COUNTY.	Estimated Population.		Births.		Birth-rate per 1,000 Population.	
	1907.	1906.	1907.	1906.	1907.	1906.
THE STATE	2,001,193	1,882,846	24,674	20,974	12.3	11.1
Northern California	274,686	272,095	2,405	2,232	8.8	8.2
Coast counties	124,373	123,078	953	824	7.7	6.7
Del Norte	2,408	2,408	27	30	11.2	12.5
Humboldt	29,648	29,285	139	45	4.7	1.5
Lake	6,017	6,017	101	70	16.8	11.6
Mendocino	22,462	22,177	151	157	6.7	7.1
Napa	16,479	16,475	139	136	8.4	8.3
Sonoma	42,511	41,935	382	376	9.0	9.0
Trinity	4,848	4,781	14	10	2.9	2.1
Interior counties	150,313	149,017	1,452	1,408	9.7	9.4
Butte	17,117	17,117	246	257	14.4	15.0
Colusa	7,364	7,364	88	60	12.0	8.1
Glenn	5,150	5,150	28	27	5.4	5.2
Lassen	4,701	4,674	43	36	9.1	7.7
Modoc	5,139	5,130	60	70	11.7	13.6
Nevada	18,083	18,041	221	255	12.2	14.1
Placer	16,266	16,197	65	75	4.0	4.6
Plumas	4,657	4,657	31	36	6.7	7.7
Shasta	20,948	20,429	210	157	10.0	7.7
Sierra	4,017	4,017	29	48	7.2	11.9
Siskiyou	20,321	19,841	171	193	8.4	9.7
Sutter	6,178	6,136	92	51	14.9	8.3
Tehama	11,752	11,644	94	72	8.0	6.2
Yuba	8,620	8,620	74	71	8.6	8.2

TABLE 6.—*Estimated Population, Births, and Birth-rate per 1,000 Population, for Counties arranged Geographically: 1907 and 1906—Continued.*

COUNTY.	Estimated Population.		Births.		Birth-rate per 1,000 Population.	
	1907.	1906.	1907.	1906.	1907.	1906.
Central California	1,235,303	1,175,186	14,347	11,889	11.6	10.1
San Francisco	450,000	450,000	5,128	3,923	11.4	8.7
Other bay counties	332,936	279,528	3,944	2,849	11.8	10.2
Alameda	280,676	228,185	3,181	2,292	11.3	10.0
Contra Costa	21,218	20,765	291	180	13.7	8.7
Marin	17,543	17,280	242	203	13.8	11.7
San Mateo	13,499	13,298	230	174	17.0	13.1
Coast counties	135,566	133,967	1,924	1,831	14.2	13.7
Monterey	19,900	19,826	270	215	13.6	10.8
San Benito	6,788	6,765	42	50	6.2	7.4
San Luis Obispo	17,033	16,976	181	168	10.6	9.9
Santa Clara	68,764	67,543	1,106	1,069	16.1	15.8
Santa Cruz	23,081	22,857	325	329	14.1	14.4
Interior counties	316,801	311,691	3,351	3,286	10.6	10.5
Alpine	509	509	6	6	11.8	11.8
Amador	11,673	11,594	62	54	5.3	4.7
Calaveras	12,923	12,591	95	95	7.4	7.5
El Dorado	8,986	8,986	81	122	9.0	13.6
Fresno	45,168	44,123	891	813	19.7	18.4
Inyo	4,960	4.877	16	11	3.2	2.3
Kern	21,150	20,488	144	169	6.8	8.3
Kings	12,823	12,479	136	125	10.6	10.0
Madera	7,598	7,423	108	93	14.2	12.5
Mariposa	5.373	5,280	14	6	2.6	1.1
Merced	10,006	9,893	63	52	6.3	5.3
Mono	2,283	2,266	2	1	0.9	0.4
Sacramento	49,818	49,261	574	506	11.5	10.3
San Joaquin	40,228	39,546	405	408	10.1	10.3
Solano	26,381	26,061	264	263	10.0	10.1
Stanislaus	9,550	9,550	151	165	15.8	17.3
Tulare	18,375	18,375	295	313	16.1	17.0
Tuolumne	14,725	14,216	3	11	0.2	0.8
Yolo	14,272	14,178	41	73	2.9	5.1
Southern California	491,204	435,565	7,922	6,853	16.1	15.7
Los Angeles	333,481	281,243	5,823	4,778	17.5	17.0
Other counties	157,723	154,322	2,099	2,075	13.3	13.4
Orange	23,971	23,360	290	343	12.1	14.7
Riverside	21,043	20,592	333	356	15.8	17.3
San Bernardino	32,850	32,145	553	509	16.8	15.8
San Diego	41,325	40,438	480*	417	11.6	10.3
Santa Barbara	21,160	20,842	300	357	14.2	17.1
Ventura	17,374	16,945	143	93	8.2	5.5
Northern and Central California	1,509,989	1,447,281	16,752	14,121	11.1	9.8
Coast counties	1,042,875	986,573	11,949	9,427	11.5	9.6
Interior counties	467,114	460,708	4,803	4,694	10.3	10.2
Metropolitan area	782,936	729,528	9,072	6,772	11.6	9.3
Rural counties	727,053	717,753	7,680	7,349	10.1	10.2

* Includes 6 births in Imperial County, formed August 15, 1907.

It appears from this table that for an estimated State population of 2,001,193 in 1907 the 24,674 births represent a birth-rate of 12.3 per 1,000 inhabitants, while for a population of 1,882,846 in 1906 the 20,974 births give a rate of 11.1 per 1,000.

The birth-rates were no less than 16.1 and 15.7 in 1907 and 1906 for the counties south of Tehachapi, as compared with only 11.1 and 9.8 for those to the north, the rates being 11.6 and 10.1 for Central California and 8.8 and 8.2 for Northern California. The birth-rates were as great as 17.5 and 17.0 for Los Angeles, against 13.3 and 13.4 for the rest of Southern California. The rates were notably high besides only for the coast counties of Central California, 14.2 in 1907 and 13.7 in 1906, the birth-rates being below the State averages for the remaining geographic divisions.

In 1906 the birth-rate was somewhat less for the metropolitan area than for the rural counties of Northern and Central California (9.3 against 10.2), but this was probably due to incomplete registration of births in San Francisco on account of the confusion following the great fire, for in 1907 the birth-rate for the urban territory was 11.6, as compared with only 10.1 for the rural districts.

Counties.—The individual counties with birth-rates above the State averages of 12.3 and 11.1 for 1907 and 1906, respectively, were as follows: Fresno, 19.7 and 18.4; Los Angeles, 17.5 and 17.0; San Mateo, 17.0 and 13.1; San Bernardino, 16.8 and 15.8; Lake, 16.8 and 11.6; Tulare, 16.1 and 17.0; Santa Clara, 16.1 and 15.8; Riverside and Stanislaus, each 15.8 and 17.3; Butte, 14.4 and 15.0; Santa Barbara, 14.2 and 17.1; Madera, 14.2 and 12.5; Santa Cruz, 14.1 and 14.4; and Marin, 13.8 and 11.7. The birth-rate was above the general average only for 1906 (11.1) in the following counties: Orange, 14.7; Nevada, 14.1; El Dorado and Modoc, each 13.6; Del Norte, 12.5; Sierra, 11.9; and Alpine, 11.8. Similarly, the birth-rate was above the State average for 1907 alone (12.3) in the following counties: Sutter, 14.9; Contra Costa, 13.7; and Monterey, 13.6.

Cities.—The table on the opposite page gives the estimated population, births, and birth-rate per 1,000 population for each city reporting births in 1907 or 1906. Since the population, except for San Francisco, Los Angeles, and Oakland, was estimated on the assumption that the increase was the same for each year since 1900 as for each year between 1890 and 1900, the estimates may be too low for cities that have grown with special rapidity since the last Federal census was taken. However, the variations from the standard method made by the Census Bureau in published estimates for Berkeley, Pasadena, and San Diego, on account of annexations of territory, have been followed in these estimates, while for other cities the same method has been applied as explained heretofore for counties.

TABLE 7.—*Estimated Population, Births, and Birth-rate per 1,000 Population, for Cities: 1907 and 1906.*

CITY.	Estimated Population.		Births.		Birth-rate per 1,000 Population.	
	1907.	1906.	1907.	1906.	1907.	1906.
FREEHOLDERS' CHARTER CITIES	1,144,630	1,044,063	15,786	12,654	13.8	12.1
REST OF STATE	856,563	838,783	8,888	8,320	10.4	9.9
Alameda County:						
Alameda city	20,174		378		18.7	
Berkeley town	20,800	19,700	510	380	24.5	19.3
Oakland city	200,000	200,000	1,824	1,561	9.1	7.8
Fresno County:						
Fresno city	13,625	13,460	384	382	28.2	28.4
Humboldt County:						
Eureka city	9,056		90		9.9	
Los Angeles County:						
Long Beach city	3,435		158		46.0	
Los Angeles city	250,000	200,000	4,201	3,780	16.8	18.9
Pasadena city	15,019	14,378	440	346	29.3	24.1
Santa Monica city	4,107		70		17.0	
Monterey county:						
Salinas city	3,983	3,886	60	53	15.1	13.6
Napa County:						
Napa city	4,036	4,036	78	73	19.3	18.1
Nevada County:						
Grass Valley city	4,836	4,539	77	109	15.9	24.0
Riverside County:						
Riverside city	9,576		105		11.0	
Sacramento County:						
Sacramento city	31,312	31,022	442	358	14.1	11.5
San Bernardino County:						
San Bernardino city	7,648	7,434	188	133	24.6	17.9
San Diego County:						
San Diego city	19,380	19,140	332	263	17.1	13.7
San Francisco:						
(City and County)	450,000	450,000	5,128	3,923	11.4	8.7
San Joaquin County:						
Stockton city	19,662	19,354	231	202	11.7	10.4
Santa Barbara County:						
Santa Barbara city	7,091	7,019	129	173	18.2	24.6
Santa Clara County:						
San José city	23,908	23,564	382	387	16.0	16.4
Santa Cruz County:						
Santa Cruz city	5,701	5,695	182	146	31.9	25.6
Watsonville city	4,494	4,356	86	87	19.1	20.0
Solano County:						
Vallejo city	9,099	8,937	149	150	16.4	16.8
Sonoma County:						
Santa Rosa city	7,688	7,543	162	148	21.1	19.6

For the twenty-four freeholders' charter cities reporting births for 1907, the estimated population was 1,144,630, so that the 15,786 births represent a birth-rate of 13.8 per 1,000 inhabitants. Similarly, for the nineteen cities reporting births in 1906, the estimated population was 1,044,063, so that the 12,654 births give a rate of 12.1. The birth-rates were considerably less for the rest of the State each year. The estimated population outside freeholders' charter cities reporting births was 856,563 in 1907 and 838,783 in 1906, so that the births totaling 8,888 and 8,320, respectively, represent birth-rates of only 10.4 and 9.9, as compared with 13.8 and 12.1 for the cities taken together.

The birth-rates were above the city averages of 13.8 and 12.1 for 1907 and 1906, respectively, in the following cities: Long Beach, 46.0 (in 1907 alone); Santa Cruz, 31.9 in 1907 and 25.6 in 1906; Pasadena, 29.3 and 24.1; Fresno, 28.2 and 28.4; San Bernardino, 24.6 and 17.9; Berkeley, 24.5 and 19.3; Santa Rosa, 21.1 and 19.6; Napa, 19.3 and 18.1; Watsonville, 19.1 and 20.0; Alameda, 18.7 (in 1907 alone); Santa Barbara, 18.2 and 24.6; San Diego, 17.1 and 13.7; Santa Monica, 17.0 (in 1907 alone); Los Angeles 16.8 and 18.9; Vallejo, 16.4 and 16.8; San José, 16.0 and 16.4; Grass Valley, 15.9 and 24.0; and Salinas, 15.1 and 13.6. The birth-rate for Sacramento was above the city average in 1907, 14.1 against 13.8, but not in 1906, only 11.5 against 12.1. The birth-rates were below the general averages for cities for Stockton, San Francisco, and Oakland, for both 1907 and 1906, and also for Riverside and Eureka in 1907, when alone these two cities reported births separately.

GENERAL BIRTH STATISTICS: 1907 AND 1906.

Sex.—The following table gives the classification of births by sex, with per cent distributions, for the several geographic divisions in both 1907 and 1906:

TABLE 8.—*Births classified by Sex, with Per Cents, for Geographic Divisions: 1907 and 1906.*

GEOGRAPHIC DIVISION.	Births.						Per Cent Male.		Per Cent Female.	
	Total.		Male.		Female.					
	1907.	1906.	1907.	1906.	1907.	1906.	1907.	1906.	1907.	1906.
THE STATE	24,674	20,974	12,645	10,926	12,029	10,048	51.2	52.1	48.8	47.9
Northern California	2,405	2,232	1,212	1,167	1,193	1,065	50.4	52.3	49.6	47.7
Coast counties	953	824	475	425	478	399	49.8	51.6	50.2	48.4
Interior counties	1,452	1,408	737	742	715	666	50.8	52.7	49.2	47.3
Central California	14,347	11,889	7,393	6,184	6,954	5,705	51.5	52.0	48.5	48.0
San Francisco	5,128	3,923	2,633	2,040	2,495	1,883	51.3	52.0	48.7	48.0
Other bay counties	3,944	2,849	2,062	1,497	1,882	1,352	52.3	52.5	47.7	47.5
Coast counties	1,924	1,831	986	961	938	870	51.2	52.5	48.8	47.5
Interior counties	3,351	3,286	1,712	1,686	1,639	1,600	51.1	51.3	48.9	48.7
Southern California	7,922	6,853	4,040	3,575	3,882	3,278	51.0	52.2	49.0	47.8
Los Angeles	5,823	4,778	2,994	2,494	2,829	2,284	51.4	52.2	48.6	47.8
Other counties	2,099	2,075	1,046	1,081	1,053	994	49.8	52.1	50.2	47.9
Northern and Central California	16,752	14,121	8,605	7.351	8,147	6,770	51.4	52.1	48.6	47.9
Coast counties	11,949	9,427	6,156	4,923	5,793	4,504	51.5	52.2	48.5	47.8
Interior counties	4,803	4,694	2,449	2,428	2,354	2,266	51.0	51.7	49.0	48.3
Metropolitan area	9,072	6,772	4,695	3,537	4,377	3,235	51.8	52.2	48.2	47.8
Rural counties	7,680	7,349	3,910	3,814	3,770	3,535	50.9	51.9	49.1	48.1

The proportion of the sexes among the 24,674 children born in California in 1907 was: Male, 12,645, or 51.2 per cent; and female, 12,029, or 48.8 per cent. Among the 20,974 children born in 1906, the proportion of the sexes was: Male, 10,926, or 52.1 per cent; and female, 10,048, or 47.9 per cent. For 1907, as compared with 1906, there was a decrease of 0.9 in the per cent male, and, correspondingly, an increase of 0.9 in the per cent female.

In 1907 the male births exceeded the female by 616, or 5.1 per cent, while in 1906 the excess of boys over girls was 878, or 8.7 per cent. In 1907 alone the girl babies outnumbered the boys by 3 in the coast counties of Northern California, and by 7 in the counties of Southern California other than Los Angeles. However, the male births exceeded the female in the remaining geographic divisions in 1907, as well as in all in 1906. In 1907 the per cent male ranged from 52.3, for the bay counties other than San Francisco, to 49.8, in each case, for the coast counties of Northern California, and for the counties south of Tehachapi, except Los Angeles. In 1906 the per cent male ranged from 52.7 for the interior counties of Northern California to 51.3 for the interior counties of Central California.

The per cents male were higher for Los Angeles in 1907 and 1906 (51.4 and 52.2) than for the other counties of Southern California (49.8 and 52.1). Similarly, the per cents were higher for the metropolitan area each year (51.8 and 52.2) than for the rural counties north of Tehachapi (50.9 and 51.9). However, the per cents male were only 51.3 and 52.0 for San Francisco in 1907 and 1906, as compared with 52.3 and 52.5 for the other bay counties.

The following table shows, for 1907 and 1906, the classification of births by sex, with per cent distributions, for the freeholders' charter cities in contrast with the rest of the State. There were twenty-four freeholders' charter cities in 1907 and nineteen in 1906:

TABLE 9.—*Births classified by Sex, with Per Cents, for Cities and Rest of State: 1907 and 1906.*

POPULATION GROUP.	Births.						Per Cent Male.		Per Cent Female.	
	Total.		Male.		Female.					
	1907.	1906.	1907.	1906.	1907.	1906.	1907.	1906.	1907.	1906.
CALIFORNIA	24,674	20,974	12,645	10,926	12,029	10,048	51.2	52 1	48.8	47.9
Freeholders' charter cities	15,786	12,654	8,115	6,572	7,671	6,082	51 4	51.9	48.6	48.1
Rest of State	8,888	8,320	4,580	4,354	1,858	3,966	51.0	52.3	49.0	47.7

It appears from this table that among the 15,786 births in the twenty-four freeholders' charter cities in 1907, the proportion of the sexes was: Male, 8,115, or 51.4 per cent; and female, 7,671, or 48.6 per cent. The proportion of the sexes among the 12,654 births for the nineteen cities in 1906 was: Male, 6,572, or 51.9 per cent; and female, 6,082, or 48.1 per cent. In the freeholders' charter cities there was a decrease of 0.5 in the per cent male, and, conversely, an increase of 0.5 in the per cent female.

In California outside freeholders' charter cities there were 8,888 births in 1907, classified by sex, as follows: Male, 4,530, or 51.0 per cent; and female, 4,358, or 49.0 per cent. For the State outside cities, in 1906, the 8,320 births were distributed by sex, as follows: Male, 4,354, or 52.3 per cent; and female, 3,966, or 47.7 per cent. For the rural part of the State the per cent male showed a decrease of 1.3 and the per cent female an increase of 1.3, correspondingly.

In the twenty-four freeholders' charter cities in 1907 the per cent male was greater by 0.4 than in the rest of the State (51.4 as compared with 51.0). In 1906, however, the per cent male for the nineteen freeholders' charter cities fell short of that for the rest of the State by 0.4 (51.9 against 52.3).

Race.—The following table gives the classification of births by race, as well as the per cent white, for the several geographic divisions in 1907 and 1906:

TABLE 10.—*Births classified by Race, with Per Cent White, for Geographic Divisions: 1907 and 1906.*

GEOGRAPHIC DIVISION.	Births.						Per Cent White.
	Total.	White.	Negro.	Indian.	Chinese.	Japanese.	
1907.							
THE STATE	24,674	24,097	179	22	155	221	97.7
Northern California	2,405	2,369	9	11	9	7	98.5
Coast counties	953	941	1	4	4	3	98.7
Interior counties	1,452	1,428	8	7	5	4	98.3
Central California	14,347	13,994	62	6	130	155	97.5
San Francisco	5,128	5,055	6		28	39	98.6
Other bay counties	3,944	3,784	29	1	78	52	95.9
Coast counties	1,924	1,879	4		8	33	97.7
Interior counties	3,351	3,276	23	5	16	31	97.8
Southern California	7,922	7,734	108	5	16	59	97.6
Los Angeles	5,823	5,671	86	2	13	51	97.4
Other counties	2,099	2,063	22	3	3	8	98.3
Northern and Central California	16,752	16,363	71	17	139	162	97.7
Coast counties	11,949	11,659	40	5	118	127	97.6
Interior counties	4,803	4,704	31	12	21	35	97.9
Metropolitan area	9,072	8,839	35	1	106	91	97.4
Rural counties	7,680	7,524	36	16	33	71	98.0
1906.							
THE STATE	20,974	20,632	82	10	116	134	98.4
Northern California	2,232	2,213	1	3	6	9	99.2
Coast counties	824	817		3	2	2	99.2
Interior counties	1,408	1,396	1		4	7	99.1
Central California	11,889	11,668	29	3	97	92	98.1
San Francisco	3,923	3,855	3	1	32	32	98.3
Other bay counties	2,849	2,767	8	1	43	30	97.1
Coast counties	1,831	1,806	2		7	16	98.6
Interior counties	3,286	3,240	16	1	15	14	98.6
Southern California	6,853	6,751	52	4	13	33	98.5
Los Angeles	4,778	4,703	44		10	21	98.4
Other counties	2,075	2,048	8	4	3	12	98.7
Northern and Central California	14,121	13,881	30	6	103	101	98.3
Coast counties	9,427	9,245	13	5	84	80	98.1
Interior counties	4,694	4,636	17	1	19	21	98.8
Metropolitan area	6,772	6,622	11	2	75	62	97.8
Rural counties	7,349	7,259	19	4	28	39	98.8

This table shows that the race distribution of the 24,674 births in California in 1907 was: White, 24,097, or 97.7 per cent; Japanese, 221; negro, 179; Chinese, 155; and Indian, 22. In 1906 the race distribution of the 20,974 births was: White, 20,632, or 98.4 per cent; Japanese, 134; Chinese, 116; negro, 82; and Indian, 10. There was a decrease of 0.7 in the per cent white, 97.7 in 1907 against 98.4 in 1906. Each year the Japanese were the leading non-Caucasian race represented in births. In 1907 the negro babies outnumbered the Chinese, though in 1906 the Chinese "native sons and daughters" outnumbered the little black pickaninnies.

In 1907 and 1906 the per cent white was highest in Northern California (98.5 and 99.2), next in Southern California (97.6 and 98.5), and lowest in Central California (97.5 and 98.1). Among the minor geographic divisions the per cent white ranged from 98.7 and 99.2 for the coast counties of Northern California in 1907 and 1906, respectively, to 95.9 and 97.1 for the bay counties other than San Francisco.

Each year the per cents white were less for Los Angeles (97.4 in 1907 and 98.4 in 1906) than for the other counties of Southern California (98.3 and 98.7); and likewise less for the metropolitan area (97.4 and 97.8) than for the rural counties north of Tehachapi (98.0 and 98.8). However, the per cents white were much greater for San Francisco than for the other bay counties, being no less than 98.6 and 98.3 for the metropolis against only 95.9 and 97.1 for the suburbs. The suburbs surpass the metropolis especially in the number of negro and Chinese babies, many Chinese having moved to Oakland after the great fire in San Francisco in 1906.

The following table gives the race distribution of births, with the per cent white, for the twenty-four freeholders' charter cities in 1907, and the nineteen in 1906, in contrast with the rest of the State:

TABLE 11.—*Births classified by Race, with Per Cent White, for Cities and Rest of State: 1907 and 1906.*

POPULATION GROUP.	Births.						Per Cent White.
	Total.	White.	Negro.	Indian.	Chinese.	Japanese.	
1907.							
CALIFORNIA	24,674	24,097	179	22	155	221	97.7
Freeholders' charter cities	15,786	15,353	138	5	127	163	97.3
Rest of State	8,888	8,744	41	17	28	58	98.4
1906.							
CALIFORNIA	20,974	20,632	82	10	116	134	98.4
Freeholders' charter cities	12,654	12,411	63	3	92	85	98.1
Rest of State	8,320	8,221	19	7	24	49	98.8

It appears from this table that among the 15,786 births in the twenty-four freeholders' charter cities in 1907, the race distribution was: White, 15,353, or 97.3 per cent; Japanese, 163; negro, 138; Chinese, 127; and Indian, 5. The race distribution of the 12,654 births in the nineteen cities in 1906 was: White, 12,411, or 98.1 per cent; Chinese, 92; Japanese, 85; negro, 63; and Indian, 3. There was a decrease of 0.8 in the per cent white, 97.3 in 1907 against 98.1 in 1906. In 1907 the Japanese and negroes were the leading non-Caucasian races represented by births in cities, though in 1906 the Chinese surpassed both.

For the State, exclusive of freeholders' charter cities, there were 8,888 births in 1907, distributed by race, as follows: White, 8,744, or 98.4 per cent; Japanese, 58; negro, 41; Chinese, 28; and Indian, 17. There were 8,320 births in California outside cities in 1906, distributed by race, as follows: White, 8,221, or 98.8 per cent; Japanese, 49; Chinese, 24; negro, 19; and Indian, 7. In the rural part of the State the per cent white showed a decrease of only 0.4, 98.4 for 1907 against 98.8 for 1906. Each year the Japanese were the leading non-Caucasian race represented by births occurring outside cities, with the negroes second in 1907 and the Chinese second in 1906.

In the twenty-four freeholders' charter cities in 1907 the per cent white was less by 1.1 than in the rest of the State (97.3 as compared with 98.4), but in the nineteen cities of this class in 1906 the per cent white fell short of that for the rural districts by only 0.7 (98.1 against 98.8).

Sex and Race.—In the following table births of whites and non-Caucasians are classified by sex, with per cents, for both 1907 and 1906. There were so few births of non-Caucasians in some geographic divisions that figures are presented here only for the twenty-four freeholders' charter cities in 1907 and the nineteen in 1906, as contrasted with the rest of California:

TABLE 12.—*Births classified by Sex and Race, with Per Cents by Sex, for Cities and Rest of State: 1907 and 1906.*

POPULATION GROUP.	Births.						Per Cent Male.		Per Cent Female.	
	Total.		Male.		Female.					
	1907.	1906.	1907.	1906.	1907.	1906.	1907.	1906.	1907.	1906.
WHITE.										
California	24,097	20,632	12,327	10,741	11,770	9,891	51.2	52.1	48.8	47.9
Freeholders' charter cities	15,353	12,411	7,878	6,444	7,475	5,967	51.3	51.9	48.7	48.1
Rest of State	8,744	8,221	4,449	4,297	4,295	3,924	50.9	52.3	49.1	47.7
NON-CAUCASIAN.										
California	577	342	318	185	259	157	55.1	54.1	44.9	45.9
Freeholders' charter cities	433	243	237	128	196	115	54.7	52.7	45.3	47.3
Rest of State	144	99	81	57	63	42	56.3	57.6	43.7	42.4

The proportion of the sexes among the white births is practically the same as shown in Table 9, *ante*, for total births. The per cents male and female for white births are identical with those for total births, except only than in the cities and the rest of the State in 1907 alone the per cents male are less by 0.1, and the per cents female are correspondingly greater by 0.1, among white births than among total births.

However, the proportion of the sexes among the few non-Caucasian births is very different from that among the many white births, the preponderance of males being much greater among the non-Caucasians than among the whites. In 1907 and 1906, respectively, the per cents male among non-Caucasian births were 55.1 and 54.1 for California as a whole; 54.7 and 52.7 for the twenty-four and nineteen freeholders' charter cities; and no less than 56.3 and 57.6 for the rest of the State.

Nativity of White Mothers.—The analysis of births by race may be extended to a consideration of births according to the nativity of white mothers—classified as born in California, born in other states, or foreign born. The cases where the nativity of the white mothers was not given on the birth certificates numbered only 129, or 0.5 per cent, in 1907 and only 161, or 0.8 per cent, in 1906. These few have been included with the mothers born elsewhere in the United States than California, because it seems less likely that the nativity would be unknown or not given for mothers born in this State or in foreign countries than for mothers born in other states.

The following table shows the nativity of white mothers, by numbers and per cents, for the several geographic divisions in both 1907 and 1906:

TABLE 13.—*White Mothers classified by Nativity, with Per Cents, for Geographic Divisions: 1907 and 1906.*

GEOGRAPHIC DIVISION.	White Mothers.				Per Cent.		
	Total.	Born in California.	Born in Other States.*	Foreign Born	Born in California.	Born in Other States.	Foreign Born.
1907.							
THE STATE	24,097	8,449	9,206	6,442	35.1	38.2	26.7
Northern California	2,369	1,253	745	371	52.9	31.4	15.7
Coast counties	941	452	273	216	48.0	29.0	23.0
Interior counties	1,428	801	472	155	56.1	33.0	10.9
Central California	13,994	5,929	3,758	4,307	42.4	26.8	30.8
San Francisco	5,055	2,088	931	2,036	41.3	18.4	40.3
Other bay counties	3,784	1,649	1,067	1,068	43.6	28.2	28.2
Coast counties	1,879	851	548	480	45.3	29.2	25.5
Interior counties	3,276	1,341	1,212	723	40.9	37.0	22.1
Southern California	7,734	1,267	4,703	1,764	16.4	60.8	22.8
Los Angeles	5,671	786	3,520	1,365	13.8	62.1	24.1
Other counties	2,063	481	1,183	399	23.3	57.4	19.3
Northern and Central California	16,363	7,182	4,503	4,678	43.9	27.5	28.6
Coast counties	11,659	5,040	2,819	3,800	43.2	24.2	32.6
Interior counties	4,704	2,142	1,684	878	45.5	35.8	18.7
Metropolitan area	8,839	3,737	1,998	3,104	42.3	22.6	35.1
Rural counties	7,524	3,445	2,505	1,574	45.8	33.3	20.9

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*Includes those of unknown nativity, numbering in the entire State only 129, or 0.5 per cent, in 1907 and 161, or 0.8 per cent, in 1906.

TABLE 13.—*White Mothers classified by Nativity, with Per Cents, for Geographic Divisions: 1907 and 1906—Continued.*

GEOGRAPHIC DIVISION.	White Mothers.				Per Cent.		
	Total.	Born in California.	Born in Other States.*	Foreign Born.	Born in California.	Born in Other States.	Foreign Born.
1906.							
THE STATE	20,632	7,482	7,811	5,339	36.3	37.8	25.9
Northern California	2,213	1,198	713	302	54.1	32.2	13.7
Coast counties	817	407	252	158	49.8	30.9	19.3
Interior counties	1,396	791	461	144	56.7	33.0	10.3
Central California	11,668	5,052	3,093	3,523	43.3	26.5	30.2
San Francisco	3,855	1,603	730	1,522	41.6	18.9	39.5
Other bay counties	2,767	1,164	750	853	42.1	27.1	30.8
Coast counties	1,806	819	538	449	45.3	29.8	24.9
Interior counties	3,240	1,466	1,075	699	45.2	33.2	21.6
Southern California	6,751	1,232	4,005	1,514	18.3	59.3	22.4
Los Angeles	4,703	733	2,813	1,157	15.6	59.8	24.6
Other counties	2,048	499	1,192	357	24.4	58.2	17.4
Northern and Central California	13,881	6,250	3,806	3,825	45.0	27.4	27.6
Coast counties	9,245	3,993	2,270	2,982	43.2	24.5	32.3
Interior counties	4,636	2,257	1,536	843	48.7	33.1	18.2
Metropolitan area	6,622	2,767	1,480	2,375	41.8	22.3	35.9
Rural counties	7,259	3,483	2,326	1,450	48.0	32.0	20.0

* Includes those of unknown nativity, numbering in the entire State only 129, or 0.5 per cent, in 1907 and 161, or 0.8 per cent, in 1906.

It appears from this table that of the mothers of the 24,097 white children born in California in 1907, 9,206, or 38.2 per cent, were themselves born in other states; 8,449, or 35.1 per cent, were born in this State; and 6,442, or 26.7 per cent, were born in foreign countries. Of the 20,632 white mothers bearing children in 1906, those born elsewhere in the United States were 7,811, or 37.8 per cent; those born in California were 7,482, or 36.3 per cent; and the foreign born were 5,339, or 25.9 per cent. There was a decrease of 1.2 in the per cent of white mothers born in California (35.1 in 1907 against 36.3 in 1906). On the other hand, there was an increase of 0.4 in the per cent of mothers born elsewhere in the United States (38.2 against 37.8), and an increase of no less than 0.8 in the per cent of foreign born mothers (26.7 against 25.9).

The proportion of white mothers born in other states is very high for Southern California, but is quite low for Northern and Central California, especially the latter. The per cents of white mothers born elsewhere in the United States were 60.8 and 59.3 for the counties south of Tehachapi in 1907 and 1906, as compared with 27.5 and 27.4 for those to the north, the per cents being 31.4 and 32.2 for Northern California, and only 26.8 and 26.5 for Central California. The per cents born in other states were 62.1 and 59.8 for Los Angeles, against 57.4 and 58.2 for the rest of Southern California. On the other hand, the per cents were only 22.6 and 22.3 for the metropolitan area, as compared with 33.3 and 32.0 for the rural counties north of Tehachapi.

Similarly, the per cents born in other states were only 18.4 and 18.9 for San Francisco, against 28.2 and 27.1 for the other bay counties.

The proportion of mothers who were themselves native daughters is very high for Northern as well as Central California, but is very low indeed for Southern California. The per cents born in the Golden State among white mothers in 1907 and 1906, respectively, were 52.9 and 54.1 for Northern California, and 42.4 and 43.3 for Central California, or 43.9 and 45.0 for both together, as compared with merely 16.4 and 18.3 for all south of Tehachapi. The per cents were as little as 13.8 and 15.6 for Los Angeles against 23.3 and 24.4 for the other counties of Southern California. The per cents were likewise less for the metropolitan area than for the rural counties north of Tehachapi, being 42.3 and 41.8 for the former against 45.8 and 48.0 for the latter. Moreover, the per cents of native daughters among the mothers were also less for the metropolis proper (41.3 and 41.6) than for the suburban counties (43.6 and 42.1).

The proportion of foreign born mothers of the white race is notably high only for Central California, particularly in San Francisco and the other bay counties. The per cents foreign born in 1907 and 1906, respectively, were 30.8 and 30.2 for Central California, as compared with merely 22.8 and 22.4 for Southern California, and 15.7 and 13.7 for Northern California. The per cents foreign born for the counties north of Tehachapi were 28.6 and 27.6 in 1907 and 1906, being no less than 35.1 and 35.9 for the metropolitan area, against only 20.9 and 20.0 for the rural counties. The per cents foreign born among white mothers in San Francisco were no less than 40.3 and 39.5, as compared with 28.2 and 30.8 for the other bay counties in 1907 and 1906, respectively.

The table which follows gives numbers and per cents showing the nativity 'of white mothers for the twenty-four freeholders' charter cities in 1907 and the nineteen in 1906, as compared with all the rest of California:

TABLE 14.—*White Mothers classified by Nativity, with Per Cents, for Cities and Rest of State: 1907 and 1906.*

POPULATION GROUP.	White Mothers.				Per Cent.		
	Total.	Born in California.	Born in Other States.*	Foreign Born.	Born in California.	Born in Other States.	Foreign Born.
1907.							
CALIFORNIA	24,097	8,449	9,206	6,442	35.1	38.2	26.7
Freeholders' charter cities	15,353	4,985	5,767	4,601	32.5	37.5	30.0
Rest of State	8,744	3,464	3,439	1,841	39.6	39.3	21.1
1906.							
CALIFORNIA	20,632	7,482	7,811	5,339	36.3	37.8	25.9
Freeholders' charter cities	12,411	4,065	4,648	3,698	32.8	37.4	29.8
Rest of State	8,221	3,417	3,163	1,641	41.6	38.5	19.9

*Includes those of unknown nativity, numbering in the entire State only 129, or 0.5 per cent, in 1907 and 161, or 0.8 per cent, in 1906.

The table shows that of the 15,353 mothers of white children born in the twenty-four freeholders' charter cities in 1907, 5,767, or 37.5 per cent, were natives of other states; 4,985, or 32.5 per cent, were natives of California; and 4,601, or 30.0 per cent, were natives of foreign countries. Of the 12,411 white mothers bearing children in the nineteen cities in 1906, those born elsewhere in the United States were 4,648, or 37.4 per cent; those born in California were 4,065, or 32.8 per cent; and those born abroad were 3,698, or 29.8 per cent. There was a decrease of 0.3 in the per cent of white mothers, in cities, born in California (32.5 for 1907, against 32.8 in 1906). On the other hand, there was an increase of 0.1 in the per cent of mothers, in cities, born in other states (37.5 against 37.4), and of 0.2 in the per cent of foreign born mothers (30.0 against 29.8).

In the State outside cities there were 8,744 births of white children in 1907, with mothers born as follows: California, 3,464, or 39.6 per cent; other states, 3,439, or 39.3 per cent; and foreign, 1,841, or 21.1 per cent. In 1906 there were 8,221 white children born in the rural part of the State, with maternal nativity as follows: California, 3,417, or 41.6 per cent; elsewhere in the United States, 3,163, or 38.5 per cent: and foreign countries, 1,641, or 19.9 per cent. The per cent of mothers born in California decreased by no less than 2.0 (39.6 against 41.6), while the per cent born in other states increased by 0.8 (39.3 against 38.5), and the per cent born abroad likewise increased by as much as 1.2 (21.1 against 19.9). These changes in the nativity of mothers in the rural part of the State were all much greater than the changes in maternal nativity for children born in the cities.

The per cents American born, whether in California or in other states, were less for cities each year than for rural districts, while the per cent foreign born was much greater within the cities than outside them. The excess in the per cent of mothers born in California for rural districts over that for cities was 7.1 in 1907 (39.6 against 32.5), and 8.8 in 1906 (41.6 against 32.8). Similarly, the excess in the per cent born in other states for the rural over the urban districts was 1.8 in 1907 (39.3 against 37.5), and 1.1 in 1906 (38.5 against 37.4). On the other hand, the excess in the per cent foreign born among white mothers in cities over that among mothers in the country districts was no less than 8.9 in 1907 (30.0 against 21.1), and as great as 9.9 in 1906 (29.8 against 19.9).

As in the State as a whole, so in the cities reporting the bulk of all births, the mothers born in other states outnumbered each year those born in California. In the territory outside cities, however, the native daughters were somewhat more numerous than other American mothers.

NATIVITY OF BRIDES AND MOTHERS: 1907 AND 1906.

Nativity of White Brides and Mothers.—Some interest may attach to a comparison between the nativity of white brides and white mothers in California. Accordingly, a table has been prepared giving, for the several geographic divisions in 1907 and 1906, the per cent distribution of white brides and white mothers by nativity, as follows:

TABLE 15.—*Per Cent Distribution, by Nativity, of White Brides and White Mothers, for Geographic Divisions: 1907 and 1906.*

GEOGRAPHIC DIVISION.	Per Cent Born in California.		Per Cent Born in Other States.		Per Cent Foreign Born.	
	White Brides.	White Mothers.	White Brides.	White Mothers.	White Brides.	White Mothers.
1907.						
THE STATE	40.9	35.1	39.2	38.2	19.9	26.7
Northern California	59.7	52.9	28.4	31.4	11.9	15.7
Coast counties	59.0	48.0	23.2	29.0	17.8	23.0
Interior counties	60.5	56.1	33.9	33.0	5.6	10.9
Central California	48.9	42.4	27.8	26.8	23.3	30.8
San Francisco	45.7	41.3	21.9	18.4	32.4	40.3
Other bay counties	49.2	43.6	28.5	28.2	22.3	28.2
Coast counties	52.7	45.3	29.9	29.2	17.4	25.5
Interior counties	50.6	40.9	33.1	37.0	16.3	22.1
Southern California	19.9	16.4	63.8	60.8	16.3	22.8
Los Angeles	17.4	13.8	65.1	62.1	17.5	24.1
Other counties	24.9	23.3	61.2	57.4	13.9	19.3
Northern and Central California	50.5	43.9	27.9	27.5	21.6	28.6
Coast counties	49.5	43.2	25.7	24.2	24.8	32.6
Interior counties	53.0	45.5	33.3	35.8	13.7	18.7
Metropolitan area	47.5	42.3	25.2	22.6	27.3	35.1
Rural counties	53.9	45.8	30.9	33.3	15.2	20.9
1906.						
THE STATE	41.6	36.3	39.7	37.8	18.7	25.9
Northern California	62.0	54.1	26.8	32.2	11.2	13.7
Coast counties	59.0	49.8	24.9	30.9	16.1	19.3
Interior counties	65.0	56.7	28.9	33.0	6.1	10.3
Central California	49.6	43.3	28.9	26.5	21.5	30.2
San Francisco	47.1	41.6	23.2	18.9	29.7	39.5
Other bay counties	49.8	42.1	28.3	27.1	21.9	30.8
Coast counties	52.8	45.3	31.0	29.8	16.2	24.9
Interior counties	50.4	45.2	35.2	33.2	14.4	21.6
Southern California	20.0	18.3	64.1	59.3	15.9	22.4
Los Angeles	17.6	15.6	65.9	59.8	16.5	24.6
Other counties	25.1	24.4	60.1	58.2	14.8	17.4
Northern and Central California	51.3	45.0	28.6	27.4	20.1	27.6
Coast counties	50.3	43.2	26.6	24.5	23.1	32.3
Interior counties	54.0	48.7	33.6	33.1	12.4	18.2
Metropolitan area	48.5	41.8	26.0	22.3	25.5	35.9
Rural counties	54.4	48.0	31.7	32.0	13.9	20.0

This table shows that while the per cents of white brides born in California were 40.9 and 41.6 in 1907 and 1906, the per cents of native daughters among white mothers were only 35.1 and 36.3, respectively.

The excess in the per cent born in California among brides over that among mothers was 5.8 in 1907 (40.9 against 35.1) and 5.3 in 1906 (41.6 against 36.3). A larger per cent of the white brides than of the white mothers were natives of the Golden State in every main and minor geographic division in both 1907 and 1906.

The per cents of white brides born in other states were 39.2 and 39.7 in 1907 and 1906, while the per cents born elsewhere in the United States were slightly less among white mothers, 38.2 and 37.8, respectively. The excess in the per cent born in other states for brides over that for mothers was 1.0 in 1907 (39.2 against 38.2) and 1.9 in 1906 (39.7 against 37.8). For the coast counties of Northern California and the interior counties of Central California in 1907, and for both the coast and interior counties of Northern California in 1906, the per cents born elsewhere in the United States were greater among white mothers than among white brides. But in all other cases each year a larger per cent of the white brides than of the white mothers in California were born in other states.

The per cents foreign born in 1907 and 1906 were only 19.9 and 18.7 among white brides, as compared with no less than 26.7 and 25.9 among white mothers. The per cent foreign born among mothers exceeded that among brides by 6.8 in 1907 (26.7 for mothers and 19.9 for brides) and by 7.2 in 1906 (25.9 for mothers and 18.7 for brides). In every geographic division both years a much larger per cent of the white mothers than of the white brides were foreign born.

The following table shows, for the several geographic divisions in 1907 and 1906, the results of comparing the per cent distribution, by nativity, of white brides and white mothers:

TABLE 16.—*Comparison of Per Cent Distribution, by Nativity, of White Brides and White Mothers, for Geographic Divisions: 1907 and 1906.*

GEOGRAPHIC DIVISION.	Excess in Per Cent Born in California for White *Brides* over that for White *Mothers*.		Excess in Per Cent Born in Other States for White *Brides* over that for White *Mothers*.		Excess in Per Cent Foreign Born for White *Mothers* over that for White *Brides*.	
	1907.	1906.	1907.	1906.	1907.	1906.
THE STATE	5.8	5.3	1.0	1.9	6.8	7.2
Northern California	6.8	7.9	—3.0	—5.4	3.8	2.5
Coast counties	11.0	9.2	—5.8	—6.0	5.2	3.2
Interior counties	4.4	8.3	0.9	—4.1	5.3	4.2
Central California	6.5	6.3	1.0	2.4	7.5	8.7
San Francisco	4.4	5.5	3.5	4.3	7.9	9.8
Other bay counties	5.6	7.7	0.3	1.2	5.9	8.9
Coast counties	7.2	7.5	0.7	1.2	8.1	8.7
Interior counties	9.7	5.2	—3.9	2.0	5.8	7.2
Southern California	3.5	1.7	3.0	4.8	6.5	6.5
Los Angeles	3.6	2.0	3.0	6.1	6.6	8.1
Other counties	1.6	0.7	3.8	1.9	5.4	2.6
Northern and Central California	6.6	6.3	0.4	1.2	7.0	7.5
Coast counties	6.3	7.1	1.5	2.1	7.8	9.2
Interior counties	7.5	5.3	—2.5	0.5	5.0	5.8
Metropolitan area	5.2	6.7	2.6	3.7	7.8	10.4
Rural counties	8.1	6.4	—2.4	—0.3	5.7	6.1

The per cents born in California were considerably greater each year among brides than among mothers, and the per cents born in other states were likewise greater, though only slightly, among brides than among mothers. On the other hand, the per cents foreign born were much greater for white mothers than for white brides both years.

The excess in the per cent born in California for brides over that for mothers was much greater for Northern and Central California, 6.6 in 1907 and 6.3 in 1906, than for Southern California, 3.5 and 1.7, respectively. However, the proportion of native daughters among both brides and mothers is much greater anyway in the counties north of Tehachapi than in those to the south. The excess in the per cents for brides over those for mothers was somewhat less for the metropolitan area than for the rural counties north of Tehachapi in 1907, 5.2 as compared with 8.1, but was slightly greater in 1906, 6.7 against 6.4. The excess in the per cents born in California among brides over that among mothers was less each year for San Francisco (4.4 in 1907 and 5.5 in 1906) than for the other bay counties (5.6 and 7.7).

The excess in the per cent born in other states for brides over that for mothers was considerably greater for the counties south of Tehachapi than for those to the north, being 3.0 and 4.8 for the former in 1907 and 1906 against only 0.4 and 1.2 for the latter. It should be noted, though, that the proportion of both brides and mothers born in other states is particularly great for Southern California, but relatively small for Northern as well as Central California. A larger proportion of the brides than of the mothers in the metropolitan area were born elsewhere in the United States, the excess in the per cents being 2.6 for 1907 and 3.7 for 1906; in the rural counties north of Tehachapi, on the contrary, a larger proportion of the mothers than of the brides were born in other states, the excess in the per cents being 2.4 and 0.3 for 1907 and 1906, respectively. The excess in the per cent born in other states among brides over that among mothers was much greater for the metropolis proper (3.5 and 4.3) than for the suburban counties (0.3 and 1.2).

The marked excess in the per cent foreign born among mothers over that among brides was greatest in Central California (7.5 in 1907 and 8.7 in 1906); next in Southern California (6.5 each year); and least in Northern California (3.8 and 2.5). These are the geographic divisions in which the proportions foreign born among both mothers and brides are likewise greatest in the same order as here stated for the excess of foreign mothers over foreign brides. For Northern and Central California together the excess in the per cent of foreign born mothers over that of foreign born brides was 7.0 in 1907 and 7.5 in 1906. In the metropolitan area, where the foreign born element mainly abounds, the excess in the per cent of foreign born mothers over that of foreign born brides was no less than 7.8 in 1907 and 10.4 in 1906, as compared with 5.7 and 6.1, respectively, for the rural counties north of Tehachapi. Similarly, for San Francisco, with a maximum proportion of foreign born inhabitants, the excess in the per cent of foreign mothers over foreign brides was as great as 7.9 and 9.8 in 1907 and 1906, against 5.9 and 8.9, respectively, for the other bay counties.

Nativity of Single White Brides and White Mothers.—Since the marriages in which the brides were single are more often fruitful in children than those in which the brides were widowed or divorced, it may be even more instructive to compare the nativity of white mothers not merely with that of all white brides but rather with the nativity of the single white brides alone. The following table has therefore been prepared to show, for the several geographic divisions in 1907 and 1906, the per cent distribution, by nativity, of single white brides and white mothers.

TABLE 17.—*Per Cent Distribution, by Nativity, of Single White Brides and White Mothers for Geographic Divisions: 1907 and 1906.*

GEOGRAPHIC DIVISION.	Per Cent Born in California.		Per Cent Born in Other States.		Per Cent Foreign Born.	
	Single White Brides.	White Mothers.	Single White Brides.	White Mothers.	Single White Brides.	White Mothers.
1907.						
THE STATE	43.5	35.1	36.8	38.2	19.7	26.7
Northern California	64.0	52.9	25.2	31.4	10.8	15.7
Coast counties	63.2	48.0	20.2	29.0	16.6	23.0
Interior counties	64.8	56.1	30.5	33.0	4.7	10.9
Central California	51.4	42.4	25.4	26.8	23.2	30.8
San Francisco	47.4	41.3	20.1	18.4	32.5	40.3
Other bay counties	52.1	43.6	25.9	28.2	22.0	28.2
Coast counties	55.9	45.3	27.6	29.2	16.5	25.5
Interior counties	53.5	40.9	30.5	37.0	16.0	22.1
Southern California	21.5	16.4	62.6	60.8	15.9	22.8
Los Angeles	18.8	13.8	64.2	62.1	17.0	24.1
Other counties	27.0	23.3	59.4	57.4	13.6	19.3
Northern and Central California	53.2	43.9	25.4	27.5	21.4	28.6
Coast counties	52.0	43.2	23.3	24.2	24.7	32.6
Interior counties	56.3	45.5	30.5	35.8	13.2	18.7
Metropolitan area	49.7	42.3	22.9	22.6	27.4	35.1
Rural counties	57.3	45.8	28.2	33.3	14.5	20.9
1906.						
THE STATE	44.3	36.3	37.3	37.8	18.4	25.9
Northern California	66.7	54.1	22.5	32.2	10.8	13.7
Coast counties	63.7	49.8	20.5	30.9	15.8	19.3
Interior counties	69.8	56.7	24.6	33.0	5.6	10.3
Central California	52.6	43.3	26.3	26.5	21.1	30.2
San Francisco	49.4	41.6	20.7	18.9	29.9	39.5
Other bay counties	53.1	42.1	25.9	27.1	21.0	30.8
Coast counties	55.9	45.3	28.3	29.8	15.8	24.9
Interior counties	53.8	45.2	32.2	33.2	14.0	21.6
Southern California	21.4	18.3	62.9	59.3	15.7	22.4
Los Angeles	18.5	15.6	65.0	59.8	16.5	24.6
Other counties	27.7	24 4	58.3	58.2	14.0	17.4
Northern and Central California	54.6	45.0	25.8	27.4	19.6	27.6
Coast counties	53.4	43.2	23.9	24.5	22.7	32.3
Interior counties	57.7	48.7	30.3	33.1	12.0	18.2
Metropolitan area	51.4	41.8	23.4	22.3	25.2	35.9
Rural counties	58.2	48.0	28.3	32.0	13.5	20.0

When the contrast is drawn between the nativity of single white brides and of white mothers, the same excess heretofore noted in the per cents foreign born among mothers over brides is found to persist in the per cents for mothers over merely the single brides. However, while the per cents born in other states were somewhat greater for all brides than for mothers, the per cents born elsewhere in the United States are slightly less for single white brides than for the white mothers. The excess in the per cent born in California among brides as compared with mothers becomes even greater when the widowed and divorced brides are eliminated and only the single brides are considered.

It appears from the table that the per cent of single white brides born in California was no less than 43.5 in 1907 and 44.3 in 1906, while the corresponding per cents for white mothers were only 35.1 and 36.3, respectively. The excess in the per cent of native daughters among single white brides over that among mothers was as great as 8.4 in 1907 (43.5 as compared with 35.1) and was 8.0 in 1906 (44.3 as compared with 36.3). In all parts of the State both years a considerably larger proportion of the single brides than of the mothers were born in California.

The per cents of single white brides born in other states were 36.8 and 37.3 in 1907 and 1906, while the per cents of mothers born elsewhere in the United States were slightly more, 38.2 and 37.8, respectively. The excess in the per cent born in other states for mothers over that for single brides was 1.4 in 1907 (38.2 for mothers and 36.8 for brides), but was only 0.5 in 1906 (37.8 for mothers and 37.3 for brides). In San Francisco and also in Los Angeles and the rest of Southern California each year the per cent born in other states was greater for single white brides than for white mothers. But in the other geographic divisions in 1907, as well as 1906, the per cents born elsewhere in the United States were somewhat greater among mothers than among single brides.

The per cents foreign born in 1907 and 1906 were only 19.7 and 18.4 among single white brides, in contrast with as much as 26.7 and 25.9 among white mothers. The per cent foreign born for mothers surpassed that for single brides by 7.0 in 1907 (26.7 against 19.7) and by 7.5 in 1906 (25.9 against 18.4). In every geographic division each year the per cent foreign born was decidedly higher for white mothers than for single white brides.

The following table gives a measure of the contrast between the per cent distribution, by nativity, of single white brides and white mothers, for the several geographic divisions in 1907 and 1906:

TABLE 18.—*Comparison of Per Cent Distribution, by Nativity, of Single White Brides and White Mothers, for Geographic Divisions: 1907 and 1906.*

GEOGRAPHIC DIVISION.	Excess in Per Cent Born in California for Single White *Brides* over that for White *Mothers*.		Excess in Per Cent Born in Other States for White *Mothers* over that for Single White *Brides*.		Excess in Per Cent Foreign Born for White *Mothers* over that for Single White *Brides*.	
	1907.	1906.	1907.	1906.	1907.	1906.
THE STATE	8.4	8.0	1.4	0.5	7.0	7.5
Northern California	11.1	12.6	6.2	9.7	4.9	2.9
Coast counties	15.2	13.9	8.8	10.4	6.4	3.5
Interior counties	8.7	13.1	2.5	8.4	6.2	4.7
Central California	9.0	9.3	1.4	0.2	7.6	9.1
San Francisco	6.1	7.8	−1.7	−1.8	7.8	9.6
Other bay counties	8.5	11.0	2.3	1.2	6.2	9.8
Coast counties	10.6	10.6	1.6	1.5	9.0	9.1
Interior counties	12.6	8.6	6.5	1.0	6.1	7.6
Southern California	5.1	3.1	−1.8	−3.6	6.9	6.7
Los Angeles	5.0	2.9	−2.1	−5.2	7.1	8.1
Other counties	3.7	3.3	−2.0	−0.1	5.7	3.4
Northern and Central California	9.3	9.6	2.1	1.6	7.2	8.0
Coast counties	8.8	10.2	0.9	0.6	7.9	9.6
Interior counties	10.8	9.0	5.3	2.8	5.5	6.2
Metropolitan area	7.4	9.6	−0.3	−1.1	7.7	10.7
Rural counties	11.5	10.2	5.1	3.7	6.4	6.5

It is only in the per cents born in California that the single white brides surpass the white mothers, though this excess is indeed very great. The per cents born outside California, whether in other states or foreign countries, are greater for mothers than for single brides, the excess being only slight in the case of other Americans but quite large in the case of the foreign born.

The excess in the per cent born in California among single brides over that among mothers was much greater for Northern and Central California, 9.3 in 1907 and 9.6 in 1906, than for Southern California, 5.1 and 3.1, respectively. In all cases, however, the proportions born in the Golden State are much greater for the counties north of Tehachapi than for those to the south. The excess in the per cents born in California for single brides over those for mothers was somewhat less for the metropolitan area (7.4 in 1907 and 9.6 in 1907) than for the rural counties north of Tehachapi (11.5 and 10.2), and was likewise less for San Francisco (6.1 and 7.8) than for the other bay counties (8.5 and 11.0).

The excess in the per cent born in other states among mothers over that among single brides is confined to Northern and Central California, being 2.1 in 1907 and 1.6 in 1906 for the whole territory north of Tehachapi. For Southern California, however, the per cent born elsewhere in the United States was higher among single brides than among mothers by 1.8 in 1907 and by 3.6 in 1906, this being the part of the State where the proportions born in other states are particularly great. In the metropolitan area, as in Southern California, the per cents born in other states were higher for single brides than for mothers by 0.3 and 1.1 in 1907 and 1906, though in the rural counties north of Tehachapi the per cents were greater for mothers than for single brides by 5.1 and 3.7, respectively. The excess in the per cents for brides in the metropolitan area, just mentioned, is confined to San Francisco, being 1.7 in 1907 and 1.8 in 1906; the excess is in the per cents for mothers (2.3 and 1.2) in the other bay counties, as in the rest of Northern and Central California outside San Francisco.

The decided excess in the per cent foreign born among mothers over that among single brides was greatest in Central California (7.6 in 1907 and 9.1 in 1906); next in Southern California (6.9 and 6.7); and least in Northern California (4.9 and 2.9). It is in these geographic divisions, in the same order as for the excess for mothers, that the per cents foreign born are relatively greatest among both mothers and brides. For Northern and Central California together the per cent foreign born among mothers exceeded that among single brides by 7.2 in 1907 and 8.0 in 1906. In the metropolitan area, where the foreign born element is especially prominent, the excess in the per cent foreign born for mothers over that for single brides was as great as 7.7 and 10.7 in 1907 and 1906, as compared with 6.4 and 6.5 for the rural counties north of Tehachapi. For San Francisco, where the foreign born population is mainly found, the excess in the per cent foreign born among mothers over that among single brides was 7.8 and 9.6 in 1907 and 1906, against 6.2 and 9.8 for the other bay counties. The excess was greater for the main city than for the suburbs in 1907, but practically the same in each case in 1906 when many San Francisco people were living across the bay on account of disturbed conditions following the great fire.

Conclusion.—The comparison of the nativity of white brides and mothers here made gives a rough measure of the relative fecundity of American and foreign born women in California. The figures indicate that in this State, as in the whole country, the foreign born women are more prone to bear children than are the American born, whether natives of California or of other states. For the proportion foreign born is much greater among mothers than among brides, whether the comparison is made for all brides or only the single ones. On the other hand, the proportion born elsewhere in the United States than California is slightly less among mothers than among all brides, though somewhat greater for mothers than for single brides alone. Similarly, the proportion born in the Golden State is considerably less among mothers than among either all or only the single brides.

However, these conclusions are only tentative, because the registration of births in California does not seem to be quite so complete as the registration of marriages. The deficiency in the registration of births is probably greatest for births in the families of Californians and other Americans, since foreign born families from training abroad appear to realize the importance of promptly registering the births of their children. This deficiency in the registration of the births of children born to American mothers may account in part for the fact that the figures for California in 1907 and 1906 indicate that the fecundity of foreign born women is greater than that of native women. However, the recent data for California agree with the results of earlier statistical investigations in other states, so that it is quite safe to conclude that foreign born women surpass the natives, whether born in California or elsewhere, in the proclivity to bear children.

TABLE 19.—*Births classified by Sex, Race, and*

Registration District.	Total Births.	Male.	Female.
The State	24,674	12,645	12,029
Northern California	2,405	1,212	1,193
Coast counties	953	475	478
Del Norte	27	10	17
Humboldt, rural	49	24	25
Eureka city	90	43	47
Lake	101	45	56
Mendocino	151	72	79
Napa, rural	61	33	28
Napa city	78	33	45
Sonoma, rural	220	117	103
Santa Rosa, city	162	91	71
Trinity	14	7	7
Interior counties	1,452	737	715
Butte	246	125	121
Colusa	88	50	38
Glenn	28	14	14
Lassen	43	19	24
Modoc	60	27	33
Nevada, rural	144	66	78
Grass Valley city	77	40	37
Placer	65	34	31
Plumas	31	14	17
Shasta	210	99	111
Sierra	29	21	8
Siskiyou	171	90	81
Sutter	92	51	41
Tehama	94	47	47
Yuba	74	40	34
Central California	14,347	7,393	6,954
San Francisco	5,128	2,633	2,495
Other bay counties	3,944	2,062	1,882
Alameda, rural	469	259	210
Alameda city	378	206	172
Berkeley town	510	264	246
Oakland city	1,824	948	876
Contra Costa	291	136	155
Marin	242	127	115
San Mateo	230	122	108
Coast counties	1,924	986	938
Monterey, rural	210	101	109
Salinas city	60	35	25
San Benito	42	17	25
San Luis Obispo	181	95	86
Santa Clara, rural	724	359	365
San José city	382	215	167
Santa Cruz, rural	57	28	29
Santa Cruz city	182	97	85
Watsonville city	86	39	47

Nativity of Mothers, for Registration Districts: 1907.

White.			Negro.	Indian.	Chinese.	Japanese.	White Mothers.			
Total.	Male.	Female.					Born in California.	Born in Other States.	Foreign Born	Unknown.
24,097	12,327	11,770	179	22	155	221	8,449	9,077	6,442	129
2,369	1,194	1,175	9	11	9	7	1,253	727	371	18
941	471	470	1	4	4	3	452	265	216	8
27	10	17	--------	--------	--------	--------	12	13	2	--------
48	24	24	--------	1	--------	--------	19	13	16	--------
89	43	46	--------	1	--------	--------	34	14	37	4
101	45	56	--------	--------	--------	--------	56	35	8	2
150	72	78	--------	1	--------	--------	83	31	35	1
57	30	27	--------	--------	3	1	20	14	23	--------
77	33	44	--------	--------	--------	1	49	16	12	--------
218	117	101	--------	1	--------	1	97	68	53	--------
161	90	71	1	--------	--------	--------	71	59	30	1
13	7	6	--------	--------	1	--------	11	2	--------	--------
1,428	723	705	8	7	5	4	801	462	155	10
242	122	120	1	2	--------	1	129	99	11	3
86	49	37	1	--------	--------	1	61	15	9	1
28	14	14	--------	--------	--------	--------	22	4	2	--------
43	19	24	--------	--------	--------	--------	25	15	3	--------
60	27	33	--------	--------	--------	--------	38	19	3	--------
142	66	76	--------	--------	2	--------	86	25	31	--------
77	40	37	--------	--------	--------	--------	46	18	12	1
64	33	31	--------	--------	--------	1	29	27	8	--------
31	14	17	--------	--------	--------	--------	13	15	3	--------
205	95	110	2	3	--------	--------	110	80	14	1
29	21	8	--------	--------	--------	--------	24	2	3	--------
170	90	80	--------	--------	1	--------	66	65	37	2
92	51	41	--------	--------	--------	--------	59	26	7	--------
91	46	45	--------	2	1	--------	47	34	9	1
68	36	32	4	--------	1	1	46	18	3	1
13,994	7,197	6,797	62	6	130	155	5,929	3,689	4,307	69
5,055	2,590	2,465	6	--------	28	39	2,088	905	2,036	26
3,784	1,982	1,802	29	1	78	52	1,649	1,051	1,068	16
458	253	205	5	--------	2	4	190	117	148	3
367	201	166	1	--------	1	9	176	91	98	2
497	259	238	1	--------	1	11	192	193	112	--------
1,704	887	817	21	1	73	25	752	489	458	5
289	135	154	1	--------	--------	1	123	78	82	6
240	126	114	--------	--------	1	1	126	38	76	--------
229	121	108	--------	--------	--------	1	90	45	94	--------
1,879	962	917	4	--------	8	33	851	543	480	5
194	93	101	--------	--------	4	12	111	39	42	2
60	35	25	--------	--------	--------	--------	30	16	14	--------
42	17	25	--------	--------	--------	--------	32	6	4	--------
179	93	86	--------	--------	1	1	104	47	28	--------
712	351	361	2	--------	2	8	266	230	214	2
374	211	163	2	--------	1	5	154	94	125	1
57	28	29	--------	--------	--------	--------	22	22	13	--------
181	97	84	--------	--------	--------	1	84	73	24	--------
80	37	43	--------	--------	--------	6	48	16	16	--------

TABLE 19.—*Births classified by Race, Sex, and Nativity*

Reistration District.	Total Births.	Male.	Female.
Central California—Continued.			
Interior counties	3,351	1,712	1,639
Alpine	6	3	3
Amador	62	35	27
Calaveras	95	46	49
El Dorado	81	47	34
Fresno, rural	507	255	252
Fresno city	384	180	204
Inyo	16	6	10
Kern	144	77	67
Kings	136	57	79
Madera	108	52	56
Mariposa	14	12	2
Merced	63	36	27
Mono	2	1	1
Sacramento, rural	132	70	62
Sacramento city	442	228	214
San Joaquin, rural	174	92	82
Stockton city	231	112	119
Solano, rural	115	65	50
Vallejo city	149	67	82
Stanislaus	151	89	62
Tulare	295	155	140
Tuolumne	3	2	1
Yolo	41	25	16
Southern California	7,922	4,040	3,882
Los Angeles	5,823	2,994	2,829
Los Angeles, rural	954	475	479
Long Beach city	158	76	82
Los Angeles city	4,201	2,174	2,027
Pasadena city	440	226	214
Santa Monica city	70	43	27
Other counties	2,099	1,046	1,053
Orange	290	146	144
Riverside, rural	228	113	115
Riverside city	105	56	49
San Bernardino, rural	365	181	184
San Bernardino city	188	89	99
San Diego, rural*	148	83	65
San Diego city	332	159	173
Santa Barbara, rural	171	78	93
Santa Barbara city	129	61	68
Ventura	143	80	63
Northern and Central California	16,752	8,605	8,147
Coast counties	11,949	6,156	5,793
Interior counties	4,803	2,449	2,354
Metropolitan area	9,072	4,695	4,377
Rural counties	7,680	3,910	3,770

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* Includes 6 births in Imperial County, formed August 15, 1907.

of Mothers, for Registration Districts: 1907—Continued.

White.			Negro.	Indian.	Chinese.	Japanese.	White Mothers.			
Total.	Male.	Female.					Born in California.	Born in Other States.	Foreign Born.	Unknown.
3,276	1,663	1,613	23	5	16	31	1,341	1,190	723	22
6	3	3	--	--	--	--	4	1	1	--
62	35	27	--	--	--	--	40	6	13	3
93	45	48	--	2	--	--	62	15	16	--
81	47	34	--	--	--	--	58	18	5	--
496	247	249	4	--	2	5	111	207	177	1
377	175	202	5	--	1	1	102	164	111	--
15	6	9	1	--	--	--	4	10	1	--
135	68	67	2	1	3	3	52	56	27	--
133	55	78	1	--	--	2	53	65	13	2
106	51	55	1	1	--	--	44	37	20	5
14	12	2	--	--	--	--	13	1	--	--
63	36	27	--	--	--	--	31	16	16	--
2	1	1	--	--	--	--	--	2	--	--
128	68	60	1	--	2	1	47	48	33	--
422	212	210	3	1	2	14	214	122	83	3
170	90	80	2	--	--	2	71	67	31	1
225	110	115	2	--	3	1	111	65	43	6
114	65	49	--	--	--	1	65	17	32	--
144	66	78	1	--	3	1	64	39	41	--
151	89	62	--	--	--	--	63	59	29	--
295	155	140	--	--	--	--	110	156	28	1
3	2	1	--	--	--	--	1	2	--	--
41	25	16	--	--	--	--	21	17	3	--
7,734	3,936	3,798	108	5	16	59	1,267	4,661	1,764	42
5,671	2,907	2,764	86	2	13	51	786	3,495	1,365	25
946	469	477	1	--	--	7	167	589	187	3
157	76	81	--	--	--	1	27	112	11	7
4,070	2,100	1,970	73	2	13	43	547	2,427	1,083	13
429	220	209	11	--	--	--	31	325	71	2
69	42	27	1	--	--	--	14	42	13	--
2,063	1,029	1,034	22	3	3	8	481	1,166	399	17
288	145	143	1	--	--	1	70	185	32	1
222	112	110	5	1	--	--	43	153	26	--
94	48	46	7	--	--	4	13	57	23	1
362	180	182	3	--	--	--	59	222	79	2
188	89	99	--	--	--	--	43	103	37	5
146	83	63	--	1	--	1	27	82	33	4
327	156	171	3	--	1	1	49	198	80	--
166	76	90	1	1	2	1	84	41	40	1
129	61	68	--	--	--	--	46	49	31	3
141	79	62	2	--	--	--	47	76	18	--
16,363	8,391	7,972	71	17	139	162	7,182	4,416	4,678	87
11,659	6,005	5,654	40	5	118	127	5,040	2,764	3,800	55
4,704	2,386	2,318	31	12	21	35	2,142	1,652	878	32
8,839	4,572	4,267	35	1	106	91	3,737	1,956	3,104	42
7,524	3,819	3,705	36	16	33	71	3,445	2,460	1,574	45

TABLE 20.—*Births classified by Sex, Race, and*

REGISTRATION DISTRICT.	Total Births.	Male.	Female.
THE STATE	20,974	10,926	10,048
Northern California	2,232	1,167	1,065
Coast counties	824	425	399
Del Norte	30	20	10
Humboldt, rural	45	23	22
Eureka city	----	----	----
Lake	70	33	37
Mendocino	157	79	78
Napa, rural	63	29	34
Napa city	73	41	32
Sonoma, rural	228	115	113
Santa Rosa city	148	81	67
Trinity	10	4	6
Interior counties	1,408	742	666
Butte	257	132	125
Colusa	60	33	27
Glenn	27	11	16
Lassen	36	14	22
Modoc	70	41	29
Nevada, rural	146	80	66
Grass Valley city	109	52	57
Placer	75	46	29
Plumas	36	23	13
Shasta	157	85	72
Sierra	48	30	18
Siskiyou	193	103	90
Sutter	51	26	25
Tehama	72	39	33
Yuba	71	27	44
Central California	11,889	6,184	5,705
San Francisco	3,923	2,040	1,883
Other bay counties	2,849	1,497	1,352
Alameda, rural	351	185	166
Berkeley town	380	201	179
Oakland city	1,561	792	769
Contra Costa	180	94	86
Marin	203	120	83
San Mateo	174	105	69
Coast counties	1,831	961	870
Monterey, rural	162	83	79
Salinas city	53	28	25
San Benito	50	24	26
San Luis Obispo	168	90	78
Santa Clara, rural	682	346	336
San José city	387	213	174
Santa Cruz, rural	96	51	45
Santa Cruz city	146	82	64
Watsonville city	87	44	43

Nativity of Mothers, for Registration Districts: 1906.

White.			Negro.	Indian.	Chinese.	Japanese.	White Mothers.			
Total.	Male.	Female.					Born in California.	Born in Other States.	Foreign Born.	Unknown.
20,632	10,741	9,891	82	10	116	134	7,482	7,650	5,339	161
2,213	1,154	1,059	1	3	6	9	1,198	677	302	36
817	420	397	--------	3	2	2	407	238	158	14
30	20	10	--------	--------	--------	--------	8	20	2	--------
45	23	22	--------	--------	--------	--------	13	11	16	5
70	33	37	--------	--------	--------	--------	48	19	3	--------
154	77	77	--------	3	--------	--------	101	37	16	--------
63	29	34	--------	--------	--------	--------	25	15	22	1
73	41	32	--------	--------	--------	--------	38	23	8	4
224	112	112	--------	--------	2	2	107	62	52	3
148	81	67	--------	--------	--------	--------	60	50	38	--------
10	4	6	--------	--------	--------	--------	7	1	1	1
1,396	734	662	1	--------	4	7	791	439	144	22
256	131	125	--------	--------	--------	1	127	104	14	11
60	33	27	--------	--------	--------	--------	41	14	4	1
27	11	16	--------	--------	--------	--------	15	12	--------	--------
36	14	22	--------	--------	--------	--------	26	7	3	--------
70	41	29	--------	--------	--------	--------	39	28	3	--------
144	78	66	--------	--------	2	--------	84	31	29	--------
109	52	57	--------	--------	--------	--------	62	25	20	2
70	42	28	--------	--------	--------	5	31	30	9	--------
36	23	13	--------	--------	--------	--------	24	5	7	--------
156	84	72	1	--------	--------	--------	90	56	9	1
48	30	18	--------	--------	--------	--------	36	7	5	--------
193	103	90	--------	--------	--------	--------	96	66	30	1
51	26	25	--------	--------	--------	--------	28	15	6	2
72	39	33	--------	--------	--------	--------	39	30	2	1
68	27	41	--------	--------	2	1	53	9	3	3
11,668	6,066	5,602	29	3	97	92	5,052	3,024	3,523	69
3,855	2,002	1,853	3	1	32	32	1,603	702	1,522	28
2,767	1,451	1,316	8	1	43	30	1,164	742	853	8
348	184	164	--------	--------	1	2	160	80	108	--------
375	197	178	--------	--------	2	3	147	135	93	--------
1,492	756	736	7	--------	38	24	631	413	443	5
180	94	86	--------	--------	--------	--------	65	45	68	2
199	116	83	--------	1	2	1	94	37	67	1
173	104	69	1	--------	--------	--------	67	32	74	--------
1,806	948	858	2	--------	7	16	819	524	449	14
151	76	75	--------	--------	5	6	75	30	46	--------
49	25	24	--------	--------	1	3	34	9	6	--------
50	24	26	--------	--------	--------	--------	30	10	10	--------
168	90	78	--------	--------	--------	--------	91	41	36	--------
680	345	335	1	--------	--------	1	258	211	203	8
385	213	172	1	--------	1	--------	170	108	101	6
92	49	43	--------	--------	--------	4	51	27	14	--------
146	82	64	--------	--------	--------	--------	61	64	21	--------
85	44	41	--------	--------	--------	2	49	24	12	--------

TABLE 20.—*Births classified by Sex, Race, and Nativity*

Registration District.	Total Births.	Male.	Female.
Central California—Continued.			
Interior counties	3,286	1,686	1,600
Alpine	6	4	2
Amador	54	28	26
Calaveras	95	56	39
El Dorado	122	59	63
Fresno, rural	431	218	213
Fresno city	382	197	185
Inyo	11	8	3
Kern	169	95	74
Kings	125	52	73
Madera	93	44	49
Mariposa	6	4	2
Merced	52	27	25
Mono	1	1	----------
Sacramento, rural	148	73	75
Sacramento city	358	166	192
San Joaquin, rural	206	113	93
Stockton city	202	112	90
Solano, rural	113	49	64
Vallejo city	150	81	69
Stanislaus	165	92	73
Tulare	313	165	148
Tuolumne	11	9	2
Yolo	73	33	40
Southern California	6,853	3,575	3,278
Los Angeles	4,778	2,494	2,284
Los Angeles, rural	652	345	307
Los Angeles city	3,780	1,971	1,809
Pasadena city	346	178	168
Other counties	2,075	1,081	994
Orange	343	171	172
Riverside	356	193	163
San Bernardino, rural	376	207	169
San Bernardino city	133	70	63
San Diego, rural	154	75	79
San Diego city	263	143	120
Santa Barbara, rural	184	95	89
Santa Barbara city	173	80	93
Ventura	93	47	46
Northern and Central California	14,121	7,351	6,770
Coast counties	9,427	4,923	4,504
Interior counties	4,694	2,428	2,266
Metropolitan area	6,772	3,537	3,235
Rural counties	7,349	3,814	3,535

of Mothers, for Registration Districts: 1906.—Continued.

White.			Negro.	Indian.	Chinese.	Japanese.	White Mothers.			
Total.	Male.	Female.					Born in California.	Born in Other States.	Foreign Born.	Unknown.
3,240	1,665	1,575	16	1	15	14	1,466	1,056	699	19
6	4	2	----	----	----	----	6	----	----	----
54	28	26	----	----	----	----	35	6	13	----
95	56	39	----	----	----	----	76	9	10	----
121	59	62	----	----	1	----	90	20	9	2
427	218	209	3	----	----	1	127	194	106	----
376	195	181	3	1	2	----	111	149	115	1
11	8	3	----	----	----	----	4	7	----	----
167	94	73	----	----	----	2	55	67	45	----
121	49	72	2	----	----	2	48	57	15	1
92	43	49	----	----	1	----	35	33	22	2
6	4	2	----	----	----	----	5	1	----	----
51	26	25	----	----	----	1	20	16	15	----
1	1	----	----	----	----	----	1	----	----	----
143	70	73	----	----	3	2	69	35	37	2
349	163	186	3	----	3	3	175	83	83	8
204	113	91	----	----	2	----	95	68	39	2
200	110	90	1	----	1	----	117	37	45	1
111	49	62	1	----	1	----	63	20	28	----
148	80	68	1	----	1	----	79	22	47	----
163	90	73	2	----	----	----	80	50	33	----
312	165	147	----	----	----	1	120	166	26	----
11	9	2	----	----	----	----	9	----	2	----
71	31	40	----	----	----	2	46	16	9	----
6,751	3,521	3,230	52	4	13	33	1,232	3,949	1,514	56
4,703	2,452	2,251	44	----	10	21	733	2,788	1,157	25
647	342	305	2	----	----	3	136	383	121	7
3,716	1,934	1,782	36	----	10	18	567	2,161	971	17
340	176	164	6	----	----	----	30	244	65	1
2,048	1,069	979	8	4	3	12	499	1,161	357	31
342	171	171	----	----	----	1	80	207	53	2
342	185	157	5	2	----	7	62	208	55	17
374	206	168	1	----	----	1	59	250	64	1
131	70	61	1	1	----	----	29	80	22	----
153	75	78	----	1	----	----	33	83	30	7
262	143	119	1	----	----	----	44	168	50	----
180	93	87	----	----	2	2	100	37	40	3
172	80	92	----	----	1	----	58	77	36	1
92	46	46	----	----	----	1	34	51	7	----
13,881	7,220	6,661	30	6	103	101	6,250	3,701	3,825	105
9,245	4,821	4,424	13	5	84	80	3,993	2,206	2,982	64
4,636	2,399	2,237	17	1	19	21	2,257	1,495	843	41
6,622	3,453	3,169	11	2	75	62	2,767	1,444	2,375	36
7,259	3,767	3,492	19	4	28	39	3,483	2,257	1,450	69

STATISTICS OF MARRIAGES: 1907 AND 1906.

SUMMARY.

Increase.—The marriages registered in California totaled 23,005 for 1907 against 21,317 for 1906, a gain of 1,688, or 7.9 per cent.

The per cent of increase was 9.7 for Northern California and 7.0 for Central California, or 7.4 for both together, against 9.2 for Southern California.

The high rate of gain for San Francisco, 17.5 per cent, in contrast with a slight decrease for the transbay counties, indicates the return of population to the peninsula.

Other high rates of gain were 12.4 per cent for the counties south of Tehachapi except Los Angeles, and 11.6 for the coast counties of Northern California.

Of the individual counties, thirty-eight showed increases in marriages, one no change, and eighteen showed slight decreases.

Marriages increased by at least one fifth, 20.0 per cent, in the following eleven counties: Inyo, Tehama, Kern, Butte, Napa, Calaveras, Mono, Orange, Madera, Humboldt, and Kings.

The increases were also above the State average, 7.9 per cent, in fourteen other counties, as follows: San Francisco, Yuba, Santa Barbara, Modoc, Fresno, Sacramento, San Bernardino, Monterey, Tulare, Nevada, Glenn, Santa Cruz, Mendocino, and San Diego.

Comparison of the ranking of the leading counties in marriages registered shows notable rises in rank for the following counties: Orange, Humboldt, Santa Barbara, Butte, Napa, Kern, Kings, and Tehama.

Marriage-rates.—For an estimated State population of 2,001,193 in 1907 and 1,882,846 in 1906, the marriage-rates are respectively 11.5 and 11.3.

The marriage-rates are higher for Southern California than for Northern and Central California. The rates are also higher for San Francisco and the other bay counties than for the rural counties north of Tehachapi.

Of the individual counties, Marin shows the highest marriage-rates, and Orange the next highest. The rates were also above the State averages for both 1907 and 1906 for the following counties: San Mateo, Sacramento, San Diego, Los Angeles, Riverside, Santa Clara, San Bernardino, Fresno, Tulare, Santa Cruz, Santa Barbara, and San Joaquin.

The statistics indicate that there is a tendency for persons living in rural counties to be married at the largest city easily accessible, but that there is also a counter movement impelling residents of large cities like San Francisco or Los Angeles to go to the suburbs to be wed.

General Marriage Statistics.—There were 17,253 marriages in 1907 and 15,790 in 1906, which were the first for both parties, the per cents being respectively 75.0 and 74.1, or a gain of 0.9 for 1907 as compared with 1906.

The proportion of first marriages was considerably higher each year for San Francisco than for any other geographic division, though not as high as for certain small counties in the interior mountains. The proportion of marriages where both parties were single is very low indeed, however, for Marin and San Mateo counties adjoining San Francisco, as well as for Orange adjoining Los Angeles.

In 1907 there were 2,320 marriages of single men with widows or divorcees, but only 1,742 marriages of single women with widowers or divorced men, the corresponding figures for 1906 being 2,238 and 1,674. Each year only a few counties showed exceptions to the rule that there are more unions of bachelors with widows than of maids with widowers.

In 1,690 cases, or 7.3 per cent of all, in 1907 and in 1,615, or 7.6 per cent, in 1906, the marriages were the second or over for both grooms and brides. Marriages where both parties were widowed or divorced occur less in the metropolis than in the suburbs, and less in the whole urban area than in sparsely settled rural counties.

In 1907 altogether 19,573, or 85.1 per cent, of the grooms were single, 2,108 widowed, and 1,324 divorced; in 1906 the single were 18,028, or 84.6 per cent, the widowed 1,988, and the divorced 1,301.

The single brides in 1907 numbered 18,995, or 82.6 per cent, the widowed 2,312, and the divorced 1,698; in 1906, 17,464, or 81.9 per cent, were single, 2,174 widowed, and 1,679 divorced.

The widows outnumbered the widowers by 204, or 9.7 per cent, in 1907 and by 186, or 9.4 per cent, in 1906. Similarly, the divorcees remarrying outnumbered the divorced men by 374, or 28.2 per cent, in 1907 and by 378, or 29.1 per cent, in 1906.

The per cents widowed and divorced, both among grooms and brides, were greater each year for the counties south of Tehachapi than for those to the north.

More widowers, as well as widows, remarry in the country districts than in urban centers and, in the latter, more remarry in the suburbs than in the metropolis proper.

Divorced men and women both marry again more in the metropolitan area than in the rural counties, though less in the main city than in the surrounding suburbs.

The high marriage-rates for suburban counties are due largely to the fact that these places are preferred by city couples, especially by divorced persons marrying once more.

Nativity of California Brides.—Of the 23,005 brides in 1907 only 413, or 1.8 per cent, were non-Caucasians, and of 21,317 in 1906 only 362, or 1.7 per cent, belonged to other than the white race, the white brides numbering 22,592 in 1907 and 20,955 in 1906.

Of the white brides in 1907, the single numbered 18,693, or 82.7 per cent; the widowed, 2,240, or 9.9 per cent; and the divorced, 1,659, or 7.4 per cent. In 1906, 17,209, or 82.1 per cent, were single; 2,104, or 10.1 per cent, widowed; and 1,642, or 7.8 per cent, divorced.

The white brides born in California numbered 9,245 in 1907 and 8,710 in 1906, and among them the per cents single were, respectively, 87.9 and 87.6; the per cents widowed, 6.1 and 5.8; and the per cents divorced, 6.0 and 6.6.

The brides born in other states totaled 8,842 in 1907 and 8,315 in 1906, among whom the per cents for the single were, respectively, 77.9 and 77.1; for the widowed, 12.1 and 12.5; and for the divorced, 10.0 and 10.4.

There were 4,505 foreign born brides in 1907 and 3,930 in 1906, among whom the per cents single were, respectively, 81.7 and 80.7; the per cents widowed, 13.5 and 14.2; and the per cents divorced, only 4.8 and 5.1.

The proportion of widows and divorcees among all white brides was somewhat greater each year for Southern California than for Northern or Central California.

Widows remarry especially in the rural counties and divorcees particularly in the metropolitan area. Both widows and divorcees, however, remarry more in suburban counties, like Marin and San Mateo, than in San Francisco, the metropolis proper.

More widows of each nativity remarry in country districts than in urban centers, but more divorcees, whether born in California, in other states, or abroad, remarry in the metropolitan area than in rural counties. In each element of the population—Californian, other American, or foreign—more divorcees, as well as widows, remarry in the suburban territory than within the metropolis itself.

Among the white brides in 1907, 9,245, or 40.9 per cent, were born in California; 8,842, or 39.2 per cent, in other states; and 4,505, or 19.9 per cent, in foreign countries. In 1906, the native daughters numbered 8,710, or 41.6 per cent; other Americans, 8,315, or 39.7 per cent; and the foreign born, 3,930, or 18.7 per cent.

In 1907 and 1906, respectively, the per cents born in California were 43.5 and 44.3 among the single white brides; 33.6 and 35.1 among the divorced; and 25.0 and 24.0 among the widowed. In all parts of the State the native daughters form the bulk of the single brides and a large proportion of the divorced, but a small proportion of the widowed.

In 1907 and 1906 the per cents born elsewhere in the United States than here were 53.5 and 52.8 among the divorced, and 47.9 and 49.4 among the widowed, against only 36.8 and 37.3 among the single white brides. In general, a larger proportion of the divorcees than of the widows remarrying in California were born elsewhere in the United States, while relatively few of the single brides here were born in other states.

The per cents foreign born in 1907 and 1906, respectively, were 27.1 and 26.6 among the widowed, as compared with 19.7 and 18.4 among the single and only 12.9 and 12.1 among the divorced. Throughout California, as a rule, the proportion of foreign born brides is highest among the widowed, and next among the single, being very low indeed among the divorced.

While the bulk of the single brides were born in California, the great bulk of the divorcees were born elsewhere in the United States, and most of the widows were likewise born outside California, either in other states or abroad. The proportion foreign born, though relatively great among widows, is especially small among divorcees, nearly all the divorced brides being natives of California or other states.

INCREASE OF MARRIAGES: 1906 TO 1907.

Geographic Divisions.—Altogether 23,005 marriages were reported by County Recorders to the California State Bureau of Vital Statistics for 1907 as compared with 21,317 for 1906, these being the first calendar years covered by the operations of the present registration law enacted in 1905. The increase of marriages for 1907 over 1906 was 1,688, a gain of 7.9 per cent.

In the counties north of Tehachapi the marriages reported for 1907 totaled 15,728 against 14,650 for 1906, an increase of 1,078, or 7.4 per cent. For Southern California the totals were 7,277 in 1907 and 6,667 in 1906, a gain of 610, or 9.2 per cent.

The per cent of increase for San Francisco was no less than 17.5. This high rate of gain indicates that the inhabitants who were driven elsewhere by the great fire in April, 1906, were reëstablishing themselves in homes in the new San Francisco throughout 1907. Confirmation appears from the fact that the group of other bay counties, instead of showing the usual increase of marriages, suffered a slight decrease for 1907 as compared with 1906. The net gain for the entire metropolitan area was thus 7.4 per cent, or the same as for the rural counties north of Tehachapi.

In Southern California, Los Angeles shows an increase in marriages of 7.6 per cent, against no less than 12.4 per cent for the surrounding counties.

The rate of gain for Northern California alone was 9.7, being as much as 11.6 for the coast counties and 7.8 for the interior counties. The corresponding rate for Central California alone was 7.0, the per cent of increase for the coast counties other than the metropolitan area being 3.3 and that for the interior counties being 7.9, or the same as for the entire State.

The table on the following page shows the number and per cent of increase in marriages for the several geographic divisions of the State, in 1906 to 1907.

TABLE 1.—*Increase of Marriages, for Geographic Divisions: 1906 to 1907.*

GEOGRAPHIC DIVISION.	Marriages.		Increase.	
	1907.	1906.	Number.	Per Cent.
THE STATE	23,005	21,317	1,688	7.9
Northern California	2,278	2,077	201	9.7
Coast counties	1,168	1,047	121	11.6
Interior counties	1,110	1,030	80	7.8
Central California	13,450	12,573	877	7.0
San Francisco	4,158	3,539	619	17.5
Other bay counties	4,169	4,217	48*	1.1*
Coast counties	1,697	1,642	55	3.3
Interior counties	3,426	3,175	251	7.9
Southern California	7,277	6,667	610	9.2
Los Angeles	4,847	4,506	341	7.6
Other counties	2,430	2,161	269	12.4
Northern and Central California	15,728	14,650	1,078	7.4
Coast counties	11,192	10,445	747	7.2
Interior counties	4,536	4,205	331	7.9
Metropolitan area	8,327	7,756	571	7.4
Rural counties	7,401	6,894	507	7.4

* Decrease.

Counties.—The table on the opposite page gives the increase (or decrease) of marriages for each county, as well as the per cent of increase for those showing gains in 1907 over 1906.

The apparently high rate of gain shown for Inyo County is due only to the fact that complete returns for 1907 are contrasted with incomplete ones for 1906.

The per cents of increase in marriages were highest for the following counties: Tehama, 39.3; Kern, 35.5; Butte, 31.4; Napa, 27.2; Calaveras, 26.8; Mono, 25.0; Orange, 21.8; Madera, 20.4; Humboldt, 20.3; Kings, 20.0; San Francisco, 17.5; Yuba, 17.1; Santa Barbara, 16.1; Modoc, 15.2; Fresno, 14.8; Sacramento, 13.9; San Bernardino, 13.4; Monterey and Tulare, each 12.6; Nevada, 12.5; Glenn, 11.1; Santa Cruz, 10.4; Mendocino, 8.5; and San Diego, 8.1. Each of these twenty-four counties shows a rate of gain above the average rate for the State, 7.9 per cent.

There were also increases in marriages, but at rates below the State average, in the following thirteen counties arranged in descending order: Los Angeles, 7.6; San Luis Obispo, 5.9; Sonoma, 4.7; Riverside, 4.2; Stanislaus, 4.0; Tuolumne, 3.3; Ventura, 3.1; Lake, 3.0; Placer, 2.3; Contra Costa and San Mateo, each 2.0; Merced, 1.3; and Santa Clara, 0.5. For Plumas County exactly the same number of marriages were reported in 1907 as in 1906.

There were decreases in marriages for 1907 as compared with 1906 in the following eighteen counties arranged alphabetically: Alameda, Alpine, Amador, Colusa, Del Norte, El Dorado, Lassen, Marin, Mariposa, San Benito, San Joaquin, Shasta, Sierra, Siskiyou, Solano, Sutter, Trinity, and Yolo. In most of these cases, however, the decreases were only slight.

TABLE 2.—*Increase of Marriages, for Counties: 1906 to 1907.*

COUNTY.	Marriages.		Increase.	Decrease.	Per Cent of Increase.
	1907.	1906.			
CALIFORNIA	23,005	21,317	1,688		7.9
Alameda	3,009	3,019		10	
Alpine		1		1	
Amador	66	74		8	
Butte	222	169	53		31.4
Calaveras	52	41	11		26.8
Colusa	34	38		4	
Contra Costa	200	196	4		2.0
Del Norte	8	12		4	
El Dorado	45	48		3	
Fresno	630	549	81		14.8
Glenn	40	36	4		11.1
Humboldt	320	266	54		20.3
Inyo	40	13	27		207.7
Kern	206	152	54		35.5
Kings	144	120	24		20.0
Lake	34	33	1		3.0
Lassen	27	33		6	
Los Angeles	4,847	4,506	341		7.6
Madera	59	49	10		20.4
Marin	703	750		47	
Mariposa	15	17		2	
Mendocino	191	176	15		8.5
Merced	81	80	1		1.3
Modoc	38	33	5		15.2
Mono	5	4	1		25.0
Monterey	196	174	22		12.6
Napa	206	162	44		27.2
Nevada	117	104	13		12.5
Orange	638	524	114		21.8
Placer	90	88	2		2.3
Plumas	21	21			
Riverside	299	287	12		4.2
Sacramento	950	834	116		13.9
San Benito	47	58		11	
San Bernardino	458	404	54		13.4
San Diego	628*	581	47		8.1
San Francisco	4,158	3,539	619		17.5
San Joaquin	470	520		50	
San Luis Obispo	196	185	11		5.9
San Mateo	257	252	5		2.0
Santa Barbara	274	236	38		16.1
Santa Clara	961	956	5		5.9
Santa Cruz	297	269	28		10.4
Shasta	144	161		17	
Sierra	8	16		8	
Siskiyou	120	127		7	
Solano	154	186		32	
Sonoma	398	380	18		4.7
Stanislaus	104	100	4		4.0
Sutter	29	33		4	
Tehama	124	89	35		39.3
Trinity	11	18		7	
Tulare	250	222	28		12.6
Tuolumne	62	60	2		3.3
Ventura	133	129	4		3.1
Yolo	93	105		12	
Yuba	96	82	14		17.1

*Includes 5 marriages in Imperial County, formed August 15, 1907.

County Totals.—The following table shows the counties for which at least 100 marriages were reported to the State Bureau of Vital Statistics in 1907 and 1906, respectively:

TABLE 3.—*Rank of Counties with at Least 100 Marriages: 1907 and 1906.*

1907.			1906.		
Rank.	County.	Marriages.	Rank.	County.	Marriages.
	THE STATE	23,005		THE STATE	21,317
1.	Los Angeles	4,847	1.	Los Angeles	4,506
2.	San Francisco	4,158	2.	San Francisco	3,539
3.	Alameda	3,009	3.	Alameda	3,019
4.	Santa Clara	961	4.	Santa Clara	956
5.	Sacramento	950	5.	Sacramento	834
6.	Marin	703	6.	Marin	750
7.	Orange	638	7.	San Diego	581
8.	Fresno	630	8.	Fresno	549
9.	San Diego	* 628	9.	Orange	524
10.	San Joaquin	470	10.	San Joaquin	520
11.	San Bernardino	458	11.	San Bernardino	404
12.	Sonoma	398	12.	Sonoma	380
13.	Humboldt	320	13.	Riverside	287
14.	Riverside	299	14.	Santa Cruz	269
15.	Santa Cruz	297	15.	Humboldt	266
16.	Santa Barbara	274	16.	San Mateo	252
17.	San Mateo	257	17.	Santa Barbara	236
18.	Tulare	250	18.	Tulare	222
19.	Butte	222	19.	Contra Costa	196
20.	Kern	206	20.	Solano	186
21.	Napa	206	21.	San Luis Obispo	185
22.	Contra Costa	200	22.	Mendocino	176
23.	Monterey	196	23.	Monterey	174
24.	San Luis Obispo	196	24.	Butte	169
25.	Mendocino	191	25.	Napa	162
26.	Solano	154	26.	Shasta	161
27.	Kings	144	27.	Kern	152
28.	Shasta	144	28.	Ventura	129
29.	Ventura	133	29.	Siskiyou	127
30.	Tehama	124	30.	Kings	120
31.	Siskiyou	120	31.	Yolo	105
32.	Nevada	117	32.	Nevada	104
33.	Stanislaus	104	33.	Stanislaus	100
	Remaining 24 counties	1,001		Remaining 24 counties	977

* Includes 5 marriages in Imperial County, formed August 15, 1907.

Each year there were thirty-three counties with at least 100 marriages, Tehama replacing Yolo in the list in 1907. While there were only eighteen counties reporting 200 marriages for 1906, there were twenty-two reporting this number for 1907, the additional counties being Butte, Kern, Napa, and Contra Costa.

Comparison of the ranking of these leading counties in the number of marriages registered shows notable gains in certain cases. Thus, Orange County rose from ninth place to seventh, passing San Diego and Fresno, while Humboldt rose from fifteenth to thirteenth, passing Riverside and Santa Cruz. Santa Barbara displaced San Mateo in sixteenth place in the ranking. Butte rose from twenty-fourth place to nineteenth, passing Contra Costa, Solano, San Luis Obispo, Mendocino, and Monterey; Napa rose from twenty-fifth place to twenty-first, passing these same counties; and Kern rose from twenty-seventh place to twentieth, passing these counties and Shasta besides. Likewise, Kings rose from thirtieth place to twenty-seventh, passing Ventura and Siskiyou. Finally, Tehama rose from below thirty-third place to thirtieth, passing Siskiyou, Yolo, Nevada, and Stanislaus.

MARRIAGE-RATES: 1907 AND 1906.

Geographic Divisions.—For the purpose of calculating marriage-rates, the population of California has been estimated conservatively according to the Census Bureau method by adding to the population in 1900 six tenths of the increase between 1890 and 1900 for 1906, and seven tenths for 1907, except that for the few counties showing decreases between the last two Federal censuses the population in 1900 has been taken for both 1906 and 1907, and for the three principal cities arbitrary estimates have been made because of their exceptional conditions of growth. The estimate for San Francisco in 1906 was 450,000, for Los Angeles 200,000, and for Oakland 200,000, while for 1907 the estimates were, respectively, 450,000, 250,000, and 200,000, the estimates for San Francisco and Oakland remaining unchanged for 1907 because of possible overestimates for 1906.

For convenience in tabulation the fifty-seven counties of California have been grouped in three main and eight minor geographic divisions, shown in the table which follows, the counties in each group being arranged alphabetically for the sake of ready reference. Marriage-rates are also shown for the metropolitan area, comprising San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in contrast with the rural counties of Northern and Central California.

The following table gives the estimated population, marriages, and marriage-rate per 1,000 population for the several counties arranged by geographic divisions in both 1907 and 1906:

TABLE 4.—*Estimated Population, Marriages, and Marriage-rate per 1,000 Population, for Counties arranged Geographically: 1907 and 1906.*

COUNTY.	Estimated Population.		Marriages.		Marriage-rate per 1,000 Population.	
	1907.	1906.	1907.	1906.	1907.	1906.
THE STATE	2,001,193	1,882,846	23,005	21,317	11.5	11.3
Northern California	274,686	272,095	2,278	2,077	8.3	7.6
Coast counties	124,373	123,078	1,168	1,047	9.4	8.5
Del Norte	2,408	2,408	8	12	3.3	5.0
Humboldt	29,648	29,285	320	266	10.8	9.1
Lake	6,017	6,017	34	33	5.7	5.5
Mendocino	22,462	22,177	191	176	8.5	7.9
Napa	16,479	16,475	206	162	12.5	9.8
Sonoma	42,511	41,935	398	380	9.4	9.1
Trinity	4,848	4,781	11	18	2.3	3.8
Interior counties	150,313	149,017	1,110	1,030	7.4	6.9
Butte	17,117	17,117	222	169	13.0	9.9
Colusa	7,364	7,364	34	38	4.6	5.2
Glenn	5,150	5,150	40	36	7.8	7.0
Lassen	4,701	4,674	27	33	5.7	7.1
Modoc	5,139	5,130	38	33	7.4	6.4
Nevada	18,083	18,041	117	104	6.5	5.8
Placer	16,266	16,197	90	88	5.5	5.4
Plumas	4,657	4,657	21	21	4.5	4.5
Shasta	20,948	20,429	144	161	6.9	7.9
Sierra	4,017	4,017	8	16	2.0	4.0
Siskiyou	20,321	19,841	120	127	5.9	6.4
Sutter	6,178	6,136	29	33	4.7	5.4
Tehama	11,752	11,644	124	89	10.6	7.6
Yuba	8,620	8,620	96	82	11.1	9.5

TABLE 4.—*Estimated Population, Marriages, and Marriage-rate per 1,000 Population, for Counties arranged Geographically: 1907 and 1906—Continued.*

COUNTY.	Estimated Population.		Marriages.		Marriage-rate per 1,000 Population.	
	1907.	1906.	1907.	1906.	1907.	1906.
Central California	1,235,303	1,175,186	13,450	12,573	10.9	10.7
San Francisco	450,000	450,000	4,158	3,539	9.2	7.9
Other bay counties	332,936	279,528	4,169	4,217	12.5	15.1
Alameda	280,676	228,185	3,009	3,019	10.7	13.2
Contra Costa	21,218	20,765	200	196	9.4	9.4
Marin	17,543	17,280	703	750	40.1	43.4
San Mateo	13,499	13,298	257	252	19.0	19.0
Coast counties	135,566	133,967	1,697	1,642	12.5	12.3
Monterey	19,900	19,826	196	174	9.8	8.8
San Benito	6,788	6,765	47	58	6.9	8.6
San Luis Obispo	17,033	16,976	196	185	11.5	10.9
Santa Clara	68,764	67,543	961	956	14.0	14.2
Santa Cruz	23,081	22,857	297	269	12.9	11.8
Interior counties	316,801	311,691	3,426	3,175	10.8	10.2
Alpine	509	509	------	1	------	2.0
Amador	11,673	11,594	66	74	5.7	6.4
Calaveras	12,823	12,591	52	41	4.1	3.3
El Dorado	8,986	8,986	45	48	5.0	5.3
Fresno	45,168	44,123	630	549	13.9	12.4
Inyo	4,960	4,877	40	13	8.1	2.7
Kern	21,150	20,483	206	152	9.7	7.4
Kings	12,923	12,479	144	120	11.1	9.6
Madera	7,598	7,423	59	49	7.8	6.6
Mariposa	5,373	5,280	15	17	2.8	3.2
Merced	10,006	9,893	81	80	8.1	8.1
Mono	2,283	2,266	5	4	2.2	1.8
Sacramento	49,818	49,261	950	834	19.1	16.9
San Joaquin	40,228	39,546	470	520	11.7	13.2
Solano	26,381	26,061	154	186	5.8	7.1
Stanislaus	9,550	9,550	104	100	10.9	10.5
Tulare	18,375	18,375	250	222	13.6	12.1
Tuolumne	14,725	14,216	62	60	4.2	4.2
Yolo	14,272	14,178	93	105	6.5	7.4
Southern California	491,204	435,565	7.277	6,667	14.8	15.3
Los Angeles	333,481	281,243	4,847	4,506	14.5	16.0
Other counties	157,723	154,322	2,430	2,161	15.4	14.0
Orange	23,971	23,360	638	524	26.6	22.4
Riverside	21,043	20,592	299	287	14.2	13.9
San Bernardino	32,850	32,145	458	404	13.9	12.6
San Diego	41,325	40,438	*628	581	15.2	14.4
Santa Barbara	21,160	20,842	274	236	12.9	11.3
Ventura	17,374	16,945	133	129	7.7	7.6
Northern and Central California	1,509,989	1,447,281	15,728	14,650	10.4	10.1
Coast counties	1,042,875	986,573	11,192	10,445	10.7	10.6
Interior counties	467,114	460,708	4,536	4,205	9.7	9.1
Metropolitan area	782,936	729,528	8,327	7,756	10.6	10.6
Rural counties	727,053	717,753	7,401	6,894	10.2	9.6

*Includes 5 marriages in Imperial County, formed August 15, 1907.

For an estimated State population of 2,001,193 in 1907, the 23,005 marriages registered give a marriage-rate of 11.5 per 1,000 inhabitants, while for an estimated population of 1,882,846 in 1906, the 21,317 marriages represent a rate of 11.3.

The marriage-rates are higher for the counties south of Tehachapi than for those to the north, being 14.8 and 15.3 for Southern California, against 10.4 and 10.1 for Northern and Central California together in 1907 and 1906, respectively. The marriage-rates were 10.9 and 10.7 for Central California, and 8.3 and 7.6 for Northern California. In each case the rates are higher for the coast counties than for the interior counties. The rates were also higher each year for the metropolitan area, comprising San Francisco and the other bay counties, 10.6 each year, than for the rural counties of Northern and Central California, 10.2 for 1907 and 9.6 for 1906.

The rates were 14.5 and 16.0 for Los Angeles County in 1907 and 1906, and respectively 15.4 and 14.0 for the remaining counties south of Tehachapi. The other minor geographic divisions with rates above the State average are the bay counties other than San Francisco, 12.5 in 1907 and 15.1 in 1906, and the adjoining coast counties of Central California, 12.5 and 12.3 in 1907 and 1906, respectively.

Counties.—Among the individual counties, Marin adjoining San Francisco shows the highest marriage-rates, 40.1 in 1907 and 43.4 in 1906, and Orange adjoining Los Angeles shows the next highest rates, 26.6 and 22.4 for 1907 and 1906, respectively. The marriage-rates are also notably high for the following counties: San Mateo, 19.0 each year; Sacramento, 19.1 in 1907 and 16.9 in 1906; San Diego, 15.2 and 14.4, respectively; Los Angeles, 14.5 and 16.0; Riverside, 14.2 and 13.9; Santa Clara, 14.0 and 14.2; San Bernardino, 13.9 and 12.6; Fresno, 13.9 and 12.4; Tulare, 13.6 and 12.1; Santa Cruz, 12.9 and 11.8; Santa Barbara, 12.9 and 11.3; and San Joaquin, 11.7 and 13.2. These are the counties with marriage-rates above the State averages, 11.5 for 1907 and 11.3 for 1906. The rate was also above the State average for 1906 for Alameda County, 13.2 in 1906, but only 10.7 for 1907. The rates were above the State average for 1907 alone for Butte, 13.0; Napa, 12.5; and San Luis Obispo, 11.5 (10.9 in 1906). The marriage-rates were at least 10.0 per 1,000 inhabitants for the following additional counties in 1907: Kings and Yuba, each 11.1; Stanislaus, 10.9 (10.5 in 1906); Humboldt, 10.8; and Tehama, 10.6. The counties named comprise all those for which the marriage-rate was at least 10.0 per 1,000 population for one or both of the years 1907 and 1906.

The counties mentioned as having high marriage-rates will be recognized as counties having large cities. Inspection of the table also shows that in each geographic division the counties with the highest rates for the particular group are counties containing important cities or towns. Moreover, the marriage-rates are higher for the metropolitan area than for the rural counties north of Tehachapi. It seems, therefore, that there is a strong tendency for marriageable persons living in the country to go to an urban center to be married; if not to the metropolis itself, then to the largest city accessible for a satisfactory celebration of the event.

On the other hand, there is a counter movement by which couples living in metropolitan centers like San Francisco or Los Angeles select for their place of marriage not the metropolis proper, but instead a suburban city or town. This is shown by the very great proportion of marriages to resident inhabitants for Marin and San Mateo counties in the suburbs of San Francisco and for Orange County, adjoining Los Angeles. In short, country swains like to celebrate marriage in large cities, while couples belonging to a metropolis are apt to prefer the suburbs.

GENERAL MARRIAGE STATISTICS: 1907 AND 1906.

Number in Order.—The table on the following page shows the number in order of marriages, with per cents, for the three main and eight minor geographic divisions, as well as certain other groups of counties, in both 1907 and 1906.

It appears from this table that of 23,005 marriages in 1907, 17,253 were first marriages for both parties; 2,320 were first marriages for the grooms only; 1,742 were first marriages for the brides only; and 1,690 were second marriages or over for both grooms and brides. Of 21,317 marriages in 1906, there were 15,790 in which neither party had been married before; 2,238 where only the grooms were single; 1,674 where only the brides were single, and 1,615 where both grooms and brides were widowed or divorced.

The per cent of marriages which were the first for both parties was 75.0 in 1907, as compared with 74.1 in 1906, a rise of 0.9 in the per cent of first marriages. On the other hand, the per cent of marriages which were the first for the grooms only was 10.1 in 1907, against 10.5 in 1906; the per cent which were the first for the brides only was 7.6 in 1907, against 7.8 in 1906; and the per cent which were the second or over for both grooms and brides was 7.3 in 1907, against 7.6 in 1906. That is, in 1907, as compared with 1906, there was a notable gain in the proportion of marriages where both parties were single and slight decreases in the proportion of marriages where either the groom or bride, or each of them, was widowed or divorced.

TABLE 5.—*Marriage classified by Number in Order, with Per Cents, for Geographic Divisions: 1907 and 1906.*

Geographic Division.	Total Marriages.	Number of Marriage.				Per Cent of Marriages.			
		1st of Both Parties.	1st of Groom Only.	1st of Bride Only.	2d or Over of Both.	1st of Both Parties.	1st of Groom Only.	1st of Bride Only.	2d or Over of Both
1907.									
The State	23,005	17,253	2,320	1,742	1,690	75.0	10.1	7.6	7.3
Northern California	2,278	1,754	206	157	161	77.0	9.0	6.9	7.1
Coast counties	1,168	897	106	82	83	76.8	9.1	7.0	7.1
Interior counties	1,110	857	100	75	78	77.2	9.0	6.8	7.0
Central California	13,450	10,264	1,354	945	887	76.3	10.1	7.0	6.6
San Francisco	4,158	3,316	372	281	189	79.8	8.9	6.8	4.5
Other bay counties	4,169	3,045	466	345	313	73.0	11.2	8.3	7.5
Coast counties	1,697	1,299	169	108	121	76.5	10.0	6.4	7.1
Interior counties	3,426	2,604	347	211	264	76.0	10.1	6.2	7.7
Southern California	7,277	5,235	760	640	642	71.9	10.5	8.8	8.8
Los Angeles	4,847	3,541	479	418	409	73.1	9.9	8.6	8.4
Other counties	2,430	1,694	281	222	233	69.7	11.6	9.1	9.6
Northern and Central California	15,728	12,018	1,560	1,102	1,048	76.4	9.9	7.0	6.7
Coast counties	11,192	8,557	1,113	816	706	76.5	9.9	7.3	6.3
Interior counties	4,536	3,461	447	286	342	76.3	9.9	6.3	7.5
Metropolitan area	8,327	6,361	838	626	502	76.4	10.1	7.5	6.0
Rural counties	7,401	5,657	722	476	546	76.4	9.8	6.4	7.4
1906.									
The State	21,317	15,790	2,238	1,674	1,615	74.1	10.5	7.8	7.6
Northern California	2,077	1,600	201	133	143	77.0	9.7	6.4	6.9
Coast counties	1,047	809	101	67	70	77.3	9.6	6.4	6.7
Interior counties	1,030	791	100	66	73	76.8	9.7	6.4	7.1
Central California	12,573	9,377	1,362	946	888	74.6	10.8	7.5	7.1
San Francisco	3,539	2,742	353	255	189	77.5	10.0	7.2	5.3
Other bay counties	4,217	3,026	515	336	340	71.7	12.2	8.0	8.1
Coast counties	1,642	1,208	172	144	118	73.6	10.5	8.8	7.1
Interior counties	3,175	2,401	322	211	241	75.6	10.1	6.7	7.6
Southern California	6,667	4,813	675	595	584	72.2	10.1	8.9	8.8
Los Angeles	4,506	3,329	417	383	377	73.9	9.2	8.5	8.4
Other counties	2,161	1,484	258	212	207	68.7	11.9	9.8	9.6
Northern and Central California	14,650	10,977	1,563	1,079	1,031	74.9	10.7	7.4	7.0
Coast counties	10,445	7,785	1,141	802	717	74.5	10.9	7.7	6.9
Interior counties	4,205	3,192	422	277	314	75.9	10.0	6.6	7.5
Metropolitan area	7,756	5,768	868	591	529	74.4	11.2	7.6	6.8
Rural counties	6,894	5,209	695	488	502	75.5	10.1	7.1	7.3

The per cent of first marriages for both parties was highest each year for Northern California, next for Central California, and lowest for Southern California. The per cents for Northern and Central California together were 76.4 in 1907 and 74.9 in 1906, as compared with respectively 71.9 and 72.2 for the counties south of Tehachapi.

The per cents of first marriages are not far from the same for the metropolitan area as for the rural counties of Northern and Central California, being 76.4 for each group in 1907 and 74.4 for the metropolitan area, against 75.5 for the rural counties in 1906. However, in the metropolitan area there are wide differences between the per cents for San Francisco and for the other bay counties, the per cents for the metropolis proper being no less than 79.8 and 77.5 in 1907 and 1906 (or the highest among geographic divisions), but only 73.0 and 71.7, respectively, for the group of suburban counties (Alameda, Contra Costa, Marin, and San Mateo). Similarly, the per cents of first marriages were 73.1 and 73.9 for Los Angeles in 1907 and 1906, but as low as 69.7 and 68.7 for the other counties of Southern California.

The proportion of marriages where both parties were single is very high for certain small counties. Thus, all of the few marriages in Sierra County in 1907 and in Alpine and Mariposa in 1906 were first marriages for both parties, while the per cent of first marriages was also very high in 1906 for El Dorado (91.7), Inyo (92.3), and Plumas (95.2).

The per cents of first marriages, however, are very low indeed for individual counties adjoining San Francisco and Los Angeles. Thus, for counties adjoining San Francisco, the per cents were only 66.9 and 66.3 for San Mateo in 1907 and 1906, and as low as 64.0 and 61.3, respectively, for Marin. Likewise the per cents of first marriages for Orange county adjoining Los Angeles were only 66.8 in 1907 and 65.3 in 1906. There are only a few other counties in the State where in 1907 or 1906 less than 70.0 per cent of the marriages were first marriages for both parties, the additional counties in 1907 being Del Norte, Madera, Riverside, San Diego, and Santa Barbara, and in 1906 Kern, San Diego, San Joaquin, Santa Barbara, and Santa Cruz.

In 1907 there were 2,320 marriages which were the first for only the grooms, as compared with only 1,742 which were the first for only the brides. Similarly in 1906 the first marriages for only the grooms numbered 2,238, against only 1,674 for first marriages of the brides alone. The excess of first marriages of grooms only over first marriages of brides only was 578, or 33.2 per cent, in 1907 and 564, or 33.7 per cent, in 1906. In other words, the number of single men marrying widowed or divorced women is about one third greater than the number of single women marrying widowed or divorced men. No main or minor geographic division of California shows any departure from this rule that there are more unions of bachelors with widows than of maids with widowers. There were exceptions to the rule, and only slight exceptions at that, for only ten counties in 1907 (Colusa, Lake, Lassen, Nevada, Riverside, San Benito, Sutter, Tehama, Ventura, and Yuba), and for only seven in 1906 (Kings, Lake, Lassen, San Benito, Siskiyou, Sutter, and Tuolumne). In five other counties in 1907 (Calaveras, Inyo, Merced, Modoc, and Tuolumne) and in three others in 1906 (Nevada, San Bernardino, and Santa Barbara) there were exactly the same number of marriages where only the grooms were single as where only the brides were single. But in all the remaining counties of the State the rule holds good that there are many more marriages between bachelors and widows than between maidens and widowers.

The per cent of marriages which were the second or over for both grooms and brides (7.3 for the State in 1907, against 7.6 in 1906) is higher for the counties south of Tehachapi than for those to the north. The per cent for Southern California was 8.8 each year, while for Northern and Central California together it was only 6.7 in 1907 and 7.0 in 1906. The per cent of marriages where both parties were widowed or divorced was highest of all, 9.6 each year, for the counties of Southern California other than Los Angeles, being 8.4 for Los Angeles alone each year. In Northern and Central California the per cents for the rural counties were 7.4 and 7.3 in 1907 and 1906, as compared with only 6.0 and 6.8, respectively, for the metropolitan area. Moreover, in the metropolitan area the per cents were no less than 7.5 in 1907 and 8.1 in 1906 for the suburban counties, against only 4.5 and 5.3, respectively, or the lowest of all each year, for San Francisco alone. Marriages between widowed or divorced men and women occur less in San Francisco than in the suburbs, and less in a metropolitan center such as either San Francisco or Los Angeles than in sparsely settled rural counties. Thus, the counties in which at least one tenth of the marriages were between widowers and widows were in 1907 Del Norte, Inyo, Marin, San Diego, San Mateo, Siskiyou, and Tulare, and in 1906 Lake, Marin, Mono, Orange, San Bernardino, Solano, Tehama, and Tuolumne.

Status of Grooms.—The table which follows gives for each geographic division in 1907 and 1906 the civil status or marital condition of the grooms—whether single, widowed, or divorced—at the time of marriage:

TABLE 6.—*Grooms classified by Marital Condition, with Per Cents, for Geographic Divisions: 1907 and 1906.*

GEOGRAPHIC DIVISION.	Grooms.				Per Cent.		
	Totals.	Single.	Widowed	Divorced.	Single.	Widowed	Divorced.
1907.							
THE STATE	23,005	19,573	2,108	1,324	85.1	9.2	5.7
Northern California	2,278	1,960	198	120	86.0	8.7	5.3
Coast counties	1,168	1,003	107	58	85.9	9.1	5.0
Interior counties	1,110	957	91	62	86.2	8.2	5.6
Central California	13,450	11,618	1,087	745	86.4	8.1	5.5
San Francisco	4,158	3,688	279	191	88.7	6.7	4.6
Other bay counties	4,169	3,511	368	290	84.2	8.8	7.0
Coast counties	1,697	1,468	144	85	86.5	8.5	5.0
Interior counties	3,426	2,951	296	179	86.1	8.7	5.2
Southern California	7,277	5,995	823	459	82.4	11.3	6.3
Los Angeles	4,847	4,020	540	287	82.9	11.2	5.9
Other counties	2,430	1,975	283	172	81.3	11.6	7.1
Northern and Central California	15,728	13,578	1,285	865	86.3	8.2	5.5
Coast counties	11,192	9,670	898	624	86.4	8.0	5.6
Interior counties	4,536	3,908	387	241	86.2	8.5	5.3
Metropolitan area	8,327	7,199	647	481	86.4	7.8	5.8
Rural counties	7,401	6,379	638	384	86.2	8.6	5.2

TABLE 6.—*Grooms classified by Marital Condition, with Per Cents, for Geographic Divisions: 1907 and 1906—Continued.*

GEOGRAPHIC DIVISION.	Grooms.				Per Cent.		
	Totals.	Single.	Widowed	Divorced.	Single.	Widowed	Divorced.
1906.							
THE STATE	21,317	18,028	1,988	1,301	84.6	9.3	6.1
Northern California	2,077	1.801	197	79	86.7	9.5	3.8
Coast counties	1,047	910	95	42	86.9	9.1	4.0
Interior counties	1,030	891	102	37	86.5	9.9	3.6
Central California	12,573	10,739	1,054	780	85.4	8.4	6.2
San Francisco	3,539	3,095	261	183	87.4	7.4	5.2
Other bay counties	4,217	3,541	376	300	84.0	8.9	7.1
Coast counties	1,642	1,380	146	116	84.0	8.9	7.1
Interior counties	3,175	2,723	271	181	85.8	8.5	5.7
Southern California	6,667	5,488	737	442	82.3	11.1	6.6
Los Angeles	4,506	3,746	470	290	83.2	10.4	6.4
Other counties	2,161	1,742	267	152	80.6	12.4	7.0
Northern and Central California	14,650	12,540	1,251	859	85.6	8.5	5.9
Coast counties	10,445	8,926	878	641	85.5	8.4	6.1
Interior counties	4,205	3,614	373	218	85.9	8.9	5.2
Metropolitan area	7,756	6,636	637	483	85.6	8.2	6.2
Rural counties	6,894	5,904	614	376	85.6	8.9	5.5

The table shows that of 23,005 grooms in 1907, 19,573, or 85.1 per cent, were single; 2,108, or 9.2 per cent, were widowed; and 1,324, or 5.7 per cent, were divorced. Of the 21,317 grooms in 1906, the single numbered 18,028, or 84.6 per cent; the widowed 1,988, or 9.3 per cent; and the divorced 1,301, or 6.1 per cent. There was an increase of 0.5 in the per cent single for 1907 as compared with 1906, offset by a drop of 0.1 in the per cent widowed and of 0.4 in the per cent divorced.

Relatively more grooms were single in Northern and Central California than in Southern California. The per cent single for the counties north of Tehachapi was 86.3 in 1907 and 85.6 in 1906, while for the counties to the south the per cents were only 82.4 and 82.3, respectively. There is virtually no difference between the per cents for the metropolitan area and for the rural counties of Northern and Central California, the per cents differing by only 0.2 (86.4 against 86.2) in 1907, and being exactly the same (85.6) in 1906. Within the metropolitan area, however, there are wide differences between the per cents for San Francisco and for the other bay counties. The per cent of single grooms in the metropolis proper was 88.7 in 1907 and 87.4 in 1906, these being the maximum per cents among geographic divisions, while for the suburban counties the per cents were, respectively, 84.2 and 84.0, or the lowest outside Southern California. The per cents single were 82.9 and 83.2 for Los Angeles in 1907 and 1906, but only 81.3 and 80.6, respectively, for the other counties south of Tehachapi.

The individual counties in which at least 90.0 per cent of the grooms were single were (in 1907) Contra Costa, Glenn, Mariposa, Mono, Monterey, Sierra, Solano, Trinity, and Yolo, and (in 1906) Alpine.

Amador, Calaveras, Del Norte, El Dorado, Inyo, Madera, Mariposa, Merced, Modoc, Plumas, Sierra, Stanislaus, and Trinity. On the other hand, those in which only 80.0 per cent or less of the grooms were single were Del Norte, Marin, Riverside, and Sutter, in 1907, and Marin, Mono, Orange, San Diego, Santa Barbara, and Tuolumne in 1906.

The proportion of widowers among the grooms is much greater for Southern California than for Northern or Central California. The per cent widowed for the counties south of Tehachapi was 11.3 in 1907 and 11.1 in 1906, as compared with only 8.2 and 8.5, respectively, for the counties to the north. The per cents were 11.2 and 10.4 for Los Angeles in 1907 and 1906, against 11.6 and 12.4 for the other counties south of Tehachapi. Similarly, the per cents were only 7.8 and 8.2 for the metropolitan area, as compared with 8.6 and 8.9 for the rural counties of Northern and Central California. In the metropolitan area, moreover, the per cents widowed were only 6.7 and 7.4 for San Francisco, against 8.8 and 8.9 for the other bay counties. More widowers remarry in the rural counties than in metropolitan centers, and in the metropolitan district more remarry in the suburbs than in the main city.

The counties in which widowers formed at least one tenth (10.0 per cent) of all grooms in 1907 were: Del Norte, Inyo, Madera, Merced, Napa, San Benito, Sutter, Tehama, Tulare, and Yuba, north of Tehachapi; and Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Santa Barbara in Southern California. In 1906 the counties in which 10.0 per cent or more of the grooms were widowers were: Butte, Kern, Lake, Lassen, Nevada, Santa Cruz, Siskiyou, Solano, Sonoma, Sutter, Tehama, and Tuolumne, in Northern and Central California; and Los Angeles, Orange, San Bernardino, San Diego, Santa Barbara, and Ventura, south of Tehachapi.

The proportion of divorced grooms, as of the widowed, is greater for the counties south of Tehachapi than for those to the north. The per cents divorced in 1907 and 1906, respectively, were 6.3 and 6.6 for Southern California, as compared with 5.5 and 6.2 for Central California and 5.3 and 3.8 for Northern California, or 5.5 and 5.9 for both together. The per cents were 5.9 and 6.4 for Los Angeles in 1907 and 1906, against 7.1 and 7.0, respectively, for the other counties of Southern California. North of Tehachapi, on the other hand, the per cents divorced are greater for the metropolitan area than for the rural counties, being 5.8 and 6.2 for the former, against 5.2 and 5.5 for the latter. In the metropolitan area, however, the per cents divorced are much less for San Francisco than for the suburbs, being only 4.6 and 5.2 for the metropolis proper, as compared with 7.0 and 7.1 for the other bay counties. While more divorced men remarry in urban centers than in country districts, not nearly so many remarry in the main city as in the surrounding suburbs.

The individual counties in which at least 7.5 per cent of the grooms were divorced were (in 1907) Calaveras, Del Norte, El Dorado, Lake, Marin, Plumas, Riverside, San Diego, San Mateo, Santa Barbara, Siskiyou, and Stanislaus, and (in 1906) Marin, Mono, Orange, Placer, San Joaquin, San Mateo, Santa Barbara, and Santa Clara. The per cent of divorced grooms was especially high each year for Marin (10.2 in 1907 and 10.3 in 1906) and for San Mateo (10.1 and 9.1) in the suburbs of San Francisco.

Status of Brides.—The following table shows for the several geographic divisions in 1907 and 1906 the civil status or marital condition of the brides—whether single, widowed, or divorced—on the wedding day:

TABLE 7.—*Brides classified by Marital Condition, with Per Cents, for Geographic Divisions: 1907 and 1906.*

GEOGRAPHIC DIVISION.	Brides.				Per Cent.		
	Total.	Single.	Widowed	Divorced	Single.	Widowed	Divorced
1907.							
THE STATE	23,005	18,995	2,312	1,698	82.6	10.0	7.4
Northern California	2,278	1,911	238	129	83.9	10.4	5.7
Coast counties	1,168	979	122	67	83.8	10.5	5.7
Interior counties	1,110	932	116	62	84.0	10.4	5.6
Central California	13,450	11,209	1,273	968	83.3	9.5	7.2
San Francisco	4,158	3,597	337	224	86.5	8.1	5.4
Other bay counties	4,169	3,390	409	370	81.3	9.8	8.9
Coast counties	1,697	1,407	181	109	82.9	10.7	6.4
Interior counties	3,426	2,815	346	265	82.2	10.1	7.7
Southern California	7,277	5,875	801	601	80.7	11.0	8.3
Los Angeles	4,847	3,959	503	385	81.7	10.4	7.9
Other counties	2,430	1,916	298	216	78.8	12.3	8.9
Northern and Central California	15,728	13,120	1,511	1,097	83.4	9.6	7.0
Coast counties	11,192	9,373	1,049	770	83.7	9.4	6.9
Interior counties	4,536	3,747	462	327	82.6	10.2	7.2
Metropolitan area	8,327	6,987	746	594	83.9	9.0	7.1
Rural counties	7,401	6,133	765	503	82.9	10.3	6.8
1906.							
THE STATE	21,317	17,464	2,174	1,679	81.9	10.2	7.9
Northern California	2,077	1,733	206	138	83.4	9.9	6.7
Coast counties	1,047	876	96	75	83.7	9.2	7.1
Interior counties	1,030	857	110	63	83.2	10.7	6.1
Central California	12,573	10,323	1,228	1,022	82.1	9.8	8.1
San Francisco	3,539	2,997	293	249	84.7	8.3	7.0
Other bay counties	4,217	3,362	462	393	79.7	11.0	9.3
Coast counties	1,642	1,352	161	129	82.3	9.8	7.9
Interior counties	3,175	2,612	312	251	82.3	9.8	7.9
Southern California	6,667	5,408	740	519	81.1	11.1	7.8
Los Angeles	4,506	3,712	480	314	82.4	10.6	7.0
Other counties	2,161	1,696	260	205	78.5	12.0	9.5
Northern and Central California	14,650	12,056	1,434	1,160	82.3	9.8	7.9
Coast counties	10,445	8,587	1,012	846	82.2	9.7	8.1
Interior counties	4,205	3,469	422	314	82.5	10.0	7.5
Metropolitan area	7,756	6,359	755	642	82.0	9.7	8.3
Rural counties	6,894	5,697	679	518	82.6	9.9	7.5

It appears from this table that of 23,005 brides in 1907, the single numbered 18,995, or 82.6 per cent; the widowed 2,312, or 10.0 per cent; and the divorced 1,698, or 7.4 per cent. Of the 21,317 brides in 1906, 17,464, or 81.9 per cent, were single; 2,174, or 10.2 per cent, were widowed; and 1,679, or 7.9 per cent, were divorced. For 1907 as compared with 1906 there was a rise of 0.7 in the per cent single, and on the other hand, a drop of 0.2 in the per cent widowed and of 0.5 in the per cent divorced.

It may be noted that in 1907 the widowed grooms numbered only 2,108, against 2,312 for the brides, and that in 1906 the widowers totaled 1,988 and the widows 2,174. That is, the widows outnumbered the widowers by 204, or 9.7 per cent, in 1907 and by 186, or 9.4 per cent, in 1906. In 1907 the divorced grooms numbered only 1,324 and the brides 1,698, while in 1906, similarly, the divorced men remarrying totaled 1,301 and the women 1,679. In other words, the number of divorced women remarrying exceeded that of divorced men by 374, or 28.2 per cent, in 1907 and by 378, or 29.1 per cent, in 1906.

The per cent single among brides was highest in both 1907 and 1906 for Northern California (83.9 and 83.4), next for Central California (83.3 and 82.1), and lowest for Southern California (80.7 and 81.1). The per cent single for Northern and Central California together was 83.4 in 1907 and 82.3 in 1906. The per cent for the metropolitan area surpassed that for the rural counties by 1.0 in 1907 (83.9 against 82.9), but fell short by 0.6 in 1906 (82.0 against 82.6). The per cent of single brides for San Francisco was 86.5 in 1907 and 84.7 in 1906, these being the maximum per cents among geographic divisions. At the same time, the per cents for the other bay counties were only 81.3 and 79.7, respectively, or the lowest outside Southern California. The per cents single were 81.7 and 82.4 for Los Angeles in 1907 and 1906, but only 78.8 and 78.5, respectively, for the other counties south of Tehachapi.

The individual counties in which at least 90.0 per cent of the brides were single were Colusa, Glenn, Lassen, and Sierra in 1907, and Alpine, El Dorado, Inyo, Kings, Lassen, Mariposa, and Plumas in 1906. On the other hand, the counties in which only 80.0 per cent or less of the brides were single were (in 1907) Del Norte, Madera, Marin, Mariposa, Mono, Orange, Sacramento, San Diego, San Mateo, Santa Barbara, Shasta, and Trinity, and (in 1906) Kern, Marin, Mono, Orange, San Diego, San Joaquin, San Mateo, Santa Barbara, Santa Cruz, Shasta, Solano, Tehama, and Ventura.

The proportion of widows among the brides, as of widowers among grooms, is higher for Southern California than for Northern or Central California. The per cent of widowed brides for the counties south of Tehachapi was 11.0 in 1907 and 11.1 in 1906, as compared with 9.6 and 9.8, respectively, for the counties to the north. The per cents were 10.4 and 10.6 for Los Angeles in 1907 and 1906, against no less than 12.3 and 12,0 for the other counties of Southern California. In 1906 the per cent widowed was 9.7 for the metropolitan area, against 9.9 for the rural counties north of Tehachapi, while in 1907 the per cent for the metropolitan area was only 9.0, against 10.3 for the rural counties. The per cents for San Francisco were only 8.1 and 8.3 in

1907 and 1906, as compared with 9.8 and 11.0 for the other bay counties. As with widowers, so with widows, somewhat more remarry in the country districts than in urban centers, and, in the latter, more remarry in the suburbs than in the metropolis proper.

The counties in which widows formed at least one tenth (10.0 per cent) of all brides in 1907 were: Butte, Del Norte, El Dorado, Inyo, Madera, Marin, Mariposa, Mendocino, Mono, Placer, Sacramento, San Joaquin, San Mateo, Santa Clara, Santa Cruz, Shasta, Siskiyou, Solano, Sonoma, Stanislaus, Trinity, Tuolumne, and Yuba in Northern and Central California; and Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Santa Barbara in Southern California. In 1906 the counties in which 10.0 per cent or more of the brides were widows were: north of Tehachapi—Alameda, Amador, Butte, Colusa, Contra Costa, Fresno, Glenn, Kern, Madera, Marin, Monterey, Placer, Sacramento, San Joaquin, San Mateo, Santa Cruz, Shasta, Siskiyou, Solano, Sonoma, Tehama, Trinity, and Tuolumne; and south of Tehachapi—Los Angeles, Orange, San Bernardino, San Diego, Santa Barbara, and Ventura.

Generally speaking, the proportion of divorced brides, as of the grooms, is somewhat greater for Southern California than for Northern or Central California. The per cents divorced among brides in 1907 and 1906, respectively, were 8.3 and 7.8 for the counties south of Tehachapi, against 5.7 and 6.7 for Northern California, and 7.2 and 8.1 for Central California, or 7.0 and 7.9 for all north of Tehachapi. The per cents were 7.9 and 7.0 for Los Angeles in 1907 and 1906, as compared with no less than 8.9 and 9.5 for the other counties of Southern California. North of Tehachapi, on the contrary, the per cents divorced among brides (as among grooms) are greater for the metropolitan area than for the rural counties, the per cents for brides being 7.1 and 8.3 for the urban district, against 6.8 and 7.5 for the country districts as a whole. Within the metropolitan area, however, the per cent of divorced brides (as of grooms) is much less for San Francisco than for the other bay counties, the per cents divorced among brides being only 5.4 and 7.0 for the metropolis proper, against as much as 8.9 and 9.3 for the suburban territory. Divorced women, like divorced men, remarry more in the metropolitan area than in the rural counties, but less in the city itself than in the adjacent suburbs.

The individual counties in which at least 7.5 per cent of all brides in 1907 were divorced were: Amador, Calaveras, Del Norte, Kern, Madera, Marin, Plumas, Sacramento, San Benito, San Joaquin, San Mateo, Sutter, and Trinity in Northern and Central California, and all the counties of Southern California—Los Angeles, Orange, Riverside, San Bernardino, San Diego, Santa Barbara, and Ventura. The counties with 7.5 per cent or more divorced brides in 1906 were: north of Tehachapi—Alameda, Del Norte, Kern, Lake, Madera, Marin, Mono, Monterey, Napa, Placer, Sacramento, San Joaquin, San Mateo, Santa Clara, Santa Cruz, Shasta, Solano, Sutter, and Yolo; and south of Tehachapi—Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Santa Barbara. The per cent of divorced brides was particularly high each year for Marin (13.9 in 1907 and 14.5 in 1906) and for San Mateo (14.4 and 12.3) adjoining San Francisco, as well as for Orange (10.2 and 12.6) adjoining Los Angeles.

In general, the proportion of the widowed and divorced, both among grooms and brides, is notably high for counties like Marin and San Mateo in the north and Orange in the south, adjacent to the great cities of San Francisco and Los Angeles. Analysis of marriage-rates showed there is a tendency on the part of many couples belonging to these cities to go to the suburbs to be married. This preference for a suburban town rather than the city proper as a place of marriage is most marked in the case of widowed and divorced persons marrying again, especially in the case of the divorced. The shy divorcee even more than the coy maiden seeks the quiet or secrecy of a suburban Gretna Green.

NATIVITY OF CALIFORNIA BRIDES: 1907 AND 1906.

Race and Nativity.—The table below gives for California in 1907 and 1906 a classification of brides by race, nativity, and marital condition, as well as the per cent distribution by marital condition. The white brides of unknown nativity numbered only 161, or 0.7 per cent, in 1907 and 222, or 1.1 per cent, in 1906. These few have accordingly been included throughout with brides born elsewhere in the United States than California:

TABLE 8.—*Brides classified by Race, Nativity, and Marital Condition, with Per Cent Distribution by Marital Condition, for California: 1907 and 1906.*

RACE OR NATIVITY.	Brides.				Per Cent.		
	Total.	Single.	Widowed	Divorced.	Single.	Widowed	Divorced.
1907.							
THE STATE	23,005	18,995	2,312	1,698	82.6	10.0	7.4
White	22,592	18,693	2,240	1,659	82.7	9.9	7.4
Born in California	9,245	8,127	561	557	87.9	6.1	6.0
Born in other states*	8,842	6,883	1,072	887	77.9	12.1	10.0
Foreign born	4,505	3,683	607	215	81.7	13.5	4.8
Non-Caucasian	413	302	72	39	73.1	17.4	9.5
1906.							
THE STATE	21,317	17,464	2,174	1,679	81.9	10.2	7.9
White	20,955	17,209	2,104	1,642	82.1	10.1	7.8
Born in California	8,710	7,628	505	577	87.6	5.8	6.6
Born in other states*	8,315	6,410	1,039	866	77.1	12.5	10.4
Foreign born	3,930	3,171	560	199	80.7	14.2	5.1
Non-Caucasian	362	255	70	37	70.5	19.3	10.2

* Includes those of unknown nativity, numbering only 161, or 0.7 per cent, in 1907 and 22, or 1.1 per cent, in 1906.

Considering first the non-Caucasian brides, one will observe that among them the per cents single were 73.1 in 1907 and 70.5 in 1906; the per cents widowed, 17.4 and 19.3; and the per cents divorced, 9.5 and 10.2. These per cents differ greatly from the per cents for white brides, the proportion of single brides among the non-Caucasians being relatively small and the proportion widowed rather great. However, the numbers from which the per cents were calculated are themselves too small for the per cents to be very significant, especially as the non-Caucasians in California comprise widely different races, such as the Chinese and Japanese on one hand and negroes and Indians on the other. The 413 non-Caucasian brides in 1907 form only 1.8 per cent of the State total, and the 362 in 1906 form only 1.7 per cent. Of all the single brides, the non-Caucasians were only 1.6 and 1.5 per cent in 1907 and 1906; of the widowed, only 3.1 and 3.2 per cent; and of the divorced, only 2.3 and 2.2 per cent. On account of the small proportion of non-Caucasians among California brides, attention will be directed in the following discussion only to the facts for whites.

Of the 22,592 white brides in 1907, 18,693, or 82.7 per cent, were single; 2,240, or 9.9 per cent, widowed; and 1,659, or 7.4 per cent, divorced. Among the 20,955 in 1906, the single were 17,209, or 82.1 per cent; the widowed 2,104, or 10.1 per cent; and the divorced 1,642, or 7.8 per cent. For 1907 as compared with 1906 there was a rise of 0.6 in the per cent single, with declines of 0.2 and 0.4 in the per cents widowed and divorced.

Among the white brides in 1907, 9,245 were born in California, and of these, 8,127, or 87.9 per cent, were single; 561, or 6.1 per cent, widowed; and 557, or 6.0 per cent, divorced. Among the 8,710 brides in 1906 who were natives of this State, the single were 7,628, or 87.6 per cent; the widowed 505, or 5.8 per cent; and the divorced 577, or 6.6 per cent. The per cents single and widowed each increased to the extent of 0.3, while there was a decrease of 0.6 in the per cent divorced.

Including the few of unknown nativity, altogether 8,842 of the brides in 1907 were born elsewhere in the United States than California, and among them the single were 6,883, or 77.9 per cent; the widowed 1,072, or 12.1 per cent; and the divorced 887, or 10.0 per cent. Of the 8,315 white brides in 1906 who were born in other states, 6,410, or 77.1 per cent, were single; 1,039, or 12.5 per cent, widowed; and 866, or 10.4 per cent, divorced. There was an increase of 0.8 in the per cent single, with decreases of 0.4 in each case in the per cents widowed and divorced.

Of the white brides in 1907, the foreign born numbered 4,505, of whom the single were 3,683, or 81.7 per cent; the widowed 607, or 13.5 per cent; and the divorced 215, or only 4.8 per cent. Of the 3,930 foreign born brides in 1906, 3,171, or 80.7 per cent, were single; 560, or 14.2 per cent, widowed; and only 199, or 5.1 per cent, divorced. There was an increase of 1.0 in the per cent single, counterbalanced by decreases of 0.7 in the per cent widowed and 0.3 in the per cent divorced.

Status of White Brides.—The table on the following page shows, by numbers and per cents, the civil status or marital condition of the white brides at the time of marriage—whether single, widowed, or divorced—for the several geographic divisions of the State in both 1907 and 1906.

TABLE 9.—*White Brides classified by Marital Condition, with Per Cents, for Geographic Divisions: 1907 and 1906.*

GEOGRAPHIC DIVISION.	White Brides.				Per Cent.		
	Total.	Single.	Widowed	Divorced	Single.	Widowed	Divorced
1907.							
THE STATE	22,592	18,693	2,240	1,659	82.7	9.9	7.4
Northern California	2,256	1,890	237	129	83.8	10.5	5.7
Coast counties	1,163	974	122	67	83.7	10.5	5.8
Interior counties	1,093	916	115	62	83.8	10.5	5.7
Central California	13,253	11,053	1,246	954	83.4	9.4	7.2
San Francisco	4,095	3,540	334	221	86.4	8.2	5.4
Other bay counties	4,101	3,340	396	365	81.4	9.7	8.9
Coast counties	1,680	1,394	178	108	83.0	10.6	6.4
Interior counties	3,377	2,779	338	260	82.3	10.0	7.7
Southern California	7,083	5,750	757	576	81.2	10.7	8.1
Los Angeles	4,696	3,868	464	364	82.4	9.9	7.7
Other counties	2,387	1,882	293	212	78.8	12.3	8.9
Northern and Central California	15,509	12,943	1,483	1,083	83.4	9.6	7.0
Coast counties	11,039	9,248	1,030	761	83.8	9.3	6.9
Interior counties	4,470	3,695	453	322	82.7	10.1	7.2
Metropolitan area	8,196	6,880	730	586	83.9	8.9	7.2
Rural counties	7,313	6,063	753	497	82.9	10.3	6.8
1906.							
THE STATE	20,955	17,209	2,104	1,642	82.1	10.1	7.8
Northern California	2,043	1,707	199	137	83.6	9.7	6.7
Coast counties	1,041	872	94	75	83.8	9.0	7.2
Interior counties	1,002	835	105	62	83.3	10.5	6.2
Central California	12,381	10,179	1,198	1,004	82.2	9.7	8.1
San Francisco	3,489	2,951	290	248	84.6	8.3	7.1
Other bay counties	4,138	3,312	445	381	80.0	10.8	9.2
Coast counties	1,632	1,345	158	129	82.4	9.7	7.9
Interior counties	3,122	2,571	305	246	82.3	9.8	7.9
Southern California	6,531	5,323	707	501	81.5	10.8	7.7
Los Angeles	4,406	3,652	452	302	82.9	10.3	6.8
Other counties	2,125	1,671	255	199	78.6	12.0	9.4
Northern and Central California	14,424	11,886	1,397	1,141	82.4	9.7	7.9
Coast counties	10,300	8,480	987	833	82.3	9.6	8.1
Interior counties	4,124	3,406	410	308	82.6	9.9	7.5
Metropolitan area	7,627	6,263	735	629	82.1	9.6	8.3
Rural counties	6,797	5,623	662	512	82.7	9.8	7.5

It appears from this table that the per cent single among white brides was highest each year for Northern California (83.8 in 1907 and 83.6 in 1906), next for Central California (83.4 and 82.2), and lowest for Southern California (81.2 and 81.5). The per cent single for Northern and Central California together was 83.4 in 1907 and 82.4 in 1906. The per cent for the metropolitan area exceeded that for the rural counties by 1.0 in 1907 (83.9 against 82.9), but fell short by 0.6 in 1906 (82.1 against 82.7). The per cent of single white brides was highest each year among the geographic divisions for San Francisco, 86.4 in 1907 and 84.6 in 1906. At the same time, the corresponding per cents for the other bay counties were only 81.4 and 80.0, or the lowest outside Southern California. The per cents single for Los Angeles were 82.4 and 82.9 in 1907 and 1906, as compared with only 78.8 and 78.6 for the other counties south of Tehachapi.

The proportion of widows among white brides is higher for Southern California than for Northern California. The per cent widowed for the counties south of Tehachapi was 10.7 in 1907 and 10.8 in 1906 against 9.6 and 9.7, respectively, for the counties to the north. The per cents for Los Angeles were 9.9 and 10.3, and for the rest of Southern California no less than 12.3 and 12.0 in 1907 and 1906, respectively. The per cents were 8.9 and 9.6 for the metropolitan area, as compared with 10.3 and 9.8 for the rural counties north of Tehachapi. For San Francisco the per cents widowed were only 8.2 and 8.3, or the minimum each year, but for the other bay counties the per cents were considerably higher, 9.7 and 10.8. Of white widows it may therefore be said, as of widowers and widows of all races taken together, that more remarry in the rural counties than in urban centers, and that in the metropolitan area, more remarry in the suburbs than in the main city.

In general, the proportion of divorcees, as of widows, among white brides is somewhat greater for Southern California than for Northern or Central California. The per cents divorced in 1907 and 1906, respectively, were 8.1 and 7.7 for the counties south of Tehachapi, against 5.7 and 6.7 for Northern California, and 7.2 and 8.1 for Central California, or 7.0 and 7.9 for all north of Tehachapi. The per cents were 7.7 and 6.8 for Los Angeles in 1907 and 1906, against no less than 8.9 and 9.4 for the other counties of Southern California. North of Tehachapi, on the other hand, the proportion of divorcees is greater for the metropolitan area than for the rural counties, the per cents for the former being 7.2 and 8.3, against 6.8 and 7.5 for the latter. Within the urban district, however, the proportion of divorcees among white brides is much less for San Francisco than for the other bay counties, the per cents being only 5.4 and 7.1 for the metropolis proper, but as much as 8.9 and 9.2 for the surrounding suburbs. Divorcees, unlike widows, remarry more in the metropolitan area than in the rural counties, while both divorcees and widows, like divorced men and widowers, remarry more in the suburbs of a great city than within the metropolis itself.

Status of White Brides (by Nativity).—The following table shows, for the several geographic divisions in 1907 and 1906, the civil status or marital condition—as single, widowed or divorced—of the white brides classified by nativity—as born in California, born in other

states, or foreign born. For convenience in presentation, the absolute numbers are omitted and only the per cent distributions are given:

TABLE 10.—*Per Cent Distribution, by Marital Condition, of White Brides classified by Nativity, for Geographic Divisions: 1907 and 1906.*

GEOGRAPHIC DIVISION.	White Brides.								
	Per Cent Single Among those—			Per Cent Widowed Among those—			Per Cent Divorced Among those—		
	Born in California.	Born in Other States.	Foreign Born.	Born in California.	Born in Other States.	Foreign Born.	Born in California.	Born in Other States.	Foreign Born.
1907.									
THE STATE	87.9	77.9	81.7	6.1	12.1	13.5	6.0	10.0	4.8
Northern California	89.8	74.2	76.5	6.0	17.2	17.2	4.2	8.6	6.3
Coast counties	89.6	73.0	78.3	5.4	19.2	15.9	5.0	7.8	5.8
Interior counties	89.9	75.2	70.5	6.6	15.6	21.3	3.5	9.2	8.2
Central California	87.6	76.3	83.1	6.1	12.6	12.5	6.3	11.1	4.4
San Francisco	89.6	79.5	86.8	5.6	10.7	10.0	4.8	9.8	3.2
Other bay counties	86.1	74.0	80.6	6.1	13.3	12.9	7.8	12.7	6.5
Coast counties	88.0	76.5	78.8	6.5	14.3	16.8	5.5	9.2	4.4
Interior counties	87.0	75.9	80.6	6.6	12.5	15.6	6.4	11.6	3.8
Southern California	87.5	79.6	79.4	5.9	11.1	15.2	6.6	9.3	5.4
Los Angeles	89.0	81.2	80.3	5.3	10.0	14.0	5.7	8.8	5.7
Other counties	85.6	76.5	77.4	6.7	13.2	18.1	7.7	10.3	4.5
Northern and Central California	88.0	76.0	82.5	6.1	13.2	12.9	5.9	10.8	4.6
Coast counties	88.0	76.1	83.2	5.9	13.2	12.2	6.1	10.7	4.6
Interior counties	87.8	75.7	79.6	6.6	13.3	16.2	5.6	11.0	4.2
Metropolitan area	87.8	76.4	84.2	5.8	12.2	11.2	6.4	11.4	4.6
Rural counties	88.2	75.6	79.1	6.3	4.2	16.3	5.5	10.2	4.6
1906.									
THE STATE	87.6	77.1	80.7	5.8	12.5	14.2	6.6	10.4	5.1
Northern California	89.9	70.1	80.8	4.9	18.6	15.3	5.2	11.3	3.9
Coast counties	90.4	69.1	82.1	4.6	17.4	12.5	5.0	13.5	5.4
Interior counties	89.4	70.9	77.0	5.2	19.7	23.0	5.4	9.4	------
Central California	87.2	74.7	80.9	5.8	13.2	14.0	7.0	12.1	5.1
San Francisco	88.8	75.4	85.0	4.9	12.0	10.9	6.3	12.6	4.1
Other bay counties	85.3	73.4	76.6	6.7	13.5	16.4	8.0	13.1	7.0
Coast counties	87.2	75.3	80.4	5.6	13.8	15.1	7.2	10.9	4.5
Interior counties	87.8	75.4	80.2	5.6	13.3	15.8	6.6	11.3	4.0
Southern California	87.2	80.0	80.2	6.8	11.2	14.6	6.0	8.8	5.2
Los Angeles	87.5	81.7	82.7	6.6	10.7	12.5	5.9	7.6	4.8
Other counties	86.9	76.2	74.5	7.1	12.2	19.4	6.0	11.6	6.1
Northern and Central California	87.6	74.1	80.9	5.6	13.9	14.1	6.8	12.0	5.0
Coast counties	87.4	73.9	81.1	5.7	13.5	13.6	6.9	12.6	5.3
Interior counties	88.3	74.5	79.9	5.5	14.6	16.6	6.2	10.9	3.5
Metropolitan area	86.9	74.2	81.1	5.9	12.9	13.5	7.2	12.9	5.4
Rural counties	88.4	74.0	80.4	5.3	14.8	15.5	6.3	11.2	4.1

The table shows that the per cents single were no less than 87.9 and 87.6 in 1907 and 1906 among white brides born in California, as compared with only 81.7 and 80.7 among the foreign born brides and 77.9 and 77.1 among those born in other states. In every part of the State each year the per cent single is highest of all for brides who were born in California. As a rule, too, the per cent single is next highest for foreign born brides and lowest of all for those born elsewhere in the United States than here. Exceptions to this rule appear only for the interior counties of Northern California and for Los Angeles in 1907, and for the counties of Southern California other than Los Angeles in 1906.

In both 1907 and 1906 the per cent single was much higher for each class of brides in Los Angeles than for those in the other counties of Southern California. Differences appear, however, in a comparison of the per cents for the metropolitan area in contrast with the rural counties of Northern and Central California. Each year the per cent single was less for the metropolitan area than for the rural counties among brides born in California, but on the other hand the per cents single were somewhat greater for the urban center than for the country districts in the case of brides born in other states, and much greater in the case of foreign born brides. In both years the per cents single were much greater for brides of each class by nativity in San Francisco than for the corresponding class in the other bay counties.

The per cents widowed were no less than 13.5 and 14.2 in 1907 and 1906 among foreign born brides and 12.1 and 12.5 among those born in other states, against only 6.1 and 5.8 among white brides born in California. In San Francisco and in the coast counties of Northern California in both 1907 and 1906, as well as in the bay counties other than San Francisco in 1907, the per cent widowed was highest among brides born elsewhere in the United States than California. In all other geographic divisions, however, the per cent widowed was highest of all each year among foreign born brides. Without exception, the per cent widowed is decidedly lowest among white brides born in the Golden State.

The per cent widowed was less among brides of each class by nativity for Los Angeles than for the other counties south of Tehachapi; for San Francisco than for the other bay counties; and, generally speaking, also for the metropolitan area than for the rural counties north of Tehachapi. In 1906 the per cent widowed was somewhat greater for the metropolitan area than for the rural counties in the case of brides born in California, but this exceptional contrast did not appear in 1907, so that the general rule holds good that in each element of the population more widows remarry in rural counties than in urban centers, and in the latter, more remarry in the suburbs than in the main city.

The per cents divorced were as great as 10.0 and 10.4 in 1907 and 1906 among white brides born in other states, but only 6.0 and 6.6 among those born in California and 4.8 and 5.1 among foreign born brides. Everywhere in California each year the per cent divorced was greatest among brides born in other states, next among those born in this State, and lowest of all among the foreign born. The only marked exception to the rule is due to an abnormally high per cent divorced among foreign born brides in the interior counties of Northern California in 1907.

In general, the per cent divorced was less among each class of brides in Los Angeles than in the other counties of Southern California, and in San Francisco than in the other bay counties, but, on the other hand, was greater in the metropolitan area than in the rural counties of Northern and Central California. In 1907 the per cent divorced was greater among foreign born brides in Los Angeles than in the other counties south of Tehachapi, and the per cents were exactly the same among foreign born brides in the metropolitan area as in the rural counties north of Tehachapi. While more widows of each nativity remarry in country districts than in urban centers, more divorcees—whether born in California, in other states, or in foreign countries—remarry in the metropolitan area than in rural counties. Within the metropolitan area more divorcees, as well as widows, of each element of the population remarry in the suburban territory than in the metropolis proper.

Nativity of White Brides.—The following table shows, by numbers and per cents, the nativity of white brides—as born in California, born in other states, or foreign born—for the several geographic divisions in 1907 and 1906:

TABLE 11.—*White Brides classified by Nativity, with Per Cents, for Geographic Divisions: 1907 and 1906.*

GEOGRAPHIC DIVISION.	White Brides.				Per Cent.		
	Total.	Born in California.	Born in Other States.*	Foreign Born.	Born in California.	Born in Other States.	Foreign Born.
1907.							
THE STATE	22,592	9,245	8,842	4,505	40.9	39.2	19.9
Northern California	2,256	1,347	641	268	59.7	28.4	11.9
Coast counties	1,163	686	270	207	59.0	23.2	17.8
Interior counties	1,093	661	371	61	60.5	33.9	5.6
Central California	13,253	6,485	3,683	3,085	48.9	27.8	23.3
San Francisco	4,095	1,872	895	1,328	45.7	21.9	32.4
Other bay counties	4,101	2,020	1,168	913	49.2	28.5	22.3
Coast counties	1,680	885	503	292	52.7	29.9	17.4
Interior counties	3,777	1,708	1,117	552	50.6	33.1	16.3
Southern California	7,083	1,413	4,518	1,152	19.9	63.8	16.3
Los Angeles	4,696	818	3,057	821	17.4	65.1	17.5
Other counties	2,387	595	1,461	331	24.9	61.2	13.9
Northern and Central California	15,509	7,832	4,324	3,353	50.5	27.9	21.6
Coast counties	11,039	5,463	2,836	2,740	49.5	25.7	24.8
Interior counties	4,470	2,369	1,488	613	53.0	33.3	13.7
Metropolitan area	8,196	3,892	2,063	2,241	47.5	25.2	27.3
Rural counties	7,313	3,940	2,261	1,112	53.9	30.9	15.2

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* Includes those of unknown nativity, numbering in the entire State only 161, or 0.7 per cent, in 1907 and 222, or 1.1 per cent, in 1906.

TABLE 11.—*White Brides classified by Nativity, with Per Cents, for Geographic Divisions: 1907 and 1906—Continued.*

GEOGRAPHIC DIVISION.	White Brides.				Per Cent.		
	Total.	Born in California.	Born in Other States.*	Foreign Born.	Born in California.	Born in Other States.	Foreign Born.
1906.							
THE STATE	20,955	8,710	8,315	3,930	41.6	39.7	18.7
Northern California	2,043	1,266	548	229	62.0	26.8	11.2
Coast counties	1,041	614	259	168	59.0	24.9	16.1
Interior counties	1,002	652	289	61	65.0	28.9	6.1
Central California	12,381	6,137	3,584	2,660	49.6	28.9	21.5
San Francisco	3,489	1,642	809	1,038	47.1	23.2	29.7
Other bay counties	4,138	2,060	1,171	907	49.8	28.3	21.9
Coast counties	1,632	861	506	265	52.8	31.0	16.2
Interior counties	3,122	1,574	1,098	450	50.4	35.2	14.4
Southern California	6,531	1,307	4,183	1,041	20.0	64.1	15.9
Los Angeles	4,406	774	2,905	727	17.6	65.9	16.5
Other counties	2,125	533	1,278	314	25.1	60.1	14.8
Northern and Central California	14,424	7,403	4,132	2,889	51.3	28.6	20.1
Coast counties	10,300	5,177	2,745	2,378	50.3	26.6	23.1
Interior counties	4,124	2,226	1,387	511	54.0	33.6	12.4
Metropolitan area	7,627	3,702	1,980	1,945	48.5	26.0	25.5
Rural counties	6,797	3,701	2,152	944	54.4	31.7	13.9

*Includes those of unknown nativity, numbering in the entire State only 161, or 0.7 per cent, in 1907 and 222, or 1.1 per cent, in 1906.

It appears from this table that of 22,592 white brides in 1907, 9,245, or 40.9 per cent, were born in California; 8,842, or 39.2 per cent, were born in other states, including a few of unknown nativity; and 4,505, or 19.9 per cent, were foreign born. Of the 20,955 white brides in 1906, those born in California were 8,710, or 41.6 per cent; those born in other states, including the few unknown, were 8,315, or 39.7 per cent; and the foreign born were 3,930, or 18.7 per cent. While there were decreases of 0.7 and 0.5, respectively, in the per cents born in California and born in other states, there was, on the other hand, an increase of 1.2 in the per cent foreign born among white brides.

The proportion of native daughters among the brides is very high for Northern as well as Central California, but very low indeed for Southern California. The per cents born in the Golden State in 1907 and 1906, respectively, were 59.7 and 62.0 for Northern California, and 48.9 and 49.6 for Central California, or 50.5 and 51.3 for both together, against as little as 19.9 and 20.0 for Southern California. The per cents were only 17.4 and 17.6 for Los Angeles and 24.9 and 25.1 for the other counties south of Tehachapi. Similarly, north of Tehachapi the per cents were less for the metropolitan area (47.5 and 48.5) than for the rural counties (53.9 and 54.4), and also less for San Francisco (45.7 and 47.1) than for the other bay counties (49.2 and 49.8).

The proportion of white brides born elsewhere in the United States than California is very high indeed for the counties south of Tehachapi, but is quite low for those to the north. The per cents born in other states were 63.8 and 64.1 for Southern California in 1907 and 1906, being no less than 65.1 and 65.9 for Los Angeles and 61.2 and 60.1 for the other counties. On the other hand, the corresponding per cents for the counties north of Tehachapi were only 27.9 and 28.6, being 28.4 and 26.8 for Northern California and 27.8 and 28.9 for Central California. The per cents born in other states were 25.2 and 26.0 for the metropolitan area, as compared with 30.9 and 31.7 for the rural counties. For San Francisco the per cents were only 21.9 and 23.2 against 28.5 and 28.3 for the other bay counties.

The proportion of foreign born brides is notably high only for Central California, especially in San Francisco and the other bay counties. The per cents foreign born among white brides in 1907 and 1906 were 23.3 and 21.5 for Central California, as compared with only 16.3 and 15.9 for Southern California and 11.9 and 11.2 for Northern California. The per cents for the counties north of Tehachapi were 21.6 and 20.1, being no less than 27.3 and 25.5 for the metropolitan area, but only 15.2 and 13.9 for the rural counties. The per cents foreign born were no less than 32.4 and 29.7 for San Francisco alone, as compared with 22.3 and 21.9 for the other counties on the bay. Similarly, the per cents were greater for Los Angeles (17.5 and 16.5) than for the other counties of Southern California (13.9 and 14.8).

Nativity of White Brides (by Status).—The following table shows, for the several geographic divisions in 1907 and 1906, the nativity—as born in California, born in other states, or foreign born—of white brides classified by civil status or marital condition—as single, widowed, or divorced. For convenience in presentation, the absolute numbers are omitted and only the per cent distributions are given:

TABLE 12.—*Per Cent Distribution, by Nativity, of White Brides classified by Marital Condition, for Geographic Divisions: 1907 and 1906.*

GEOGRAPHIC DIVISION.	White Brides.								
	Per Cent Born in California Among the—			Per Cent Born in Other States Among the—			Per Cent Foreign Born Among the—		
	Single.	Widowed.	Divorced	Single.	Widowed.	Divorced	Single.	Widowed.	Divorced
1907.									
THE STATE	43.5	25.0	33.6	36.8	47.9	53.5	19.7	27.1	12.9
Northern California	64.0	34.2	44.2	25.2	46.4	42.6	10.8	19.4	13.2
Coast counties	63.2	30.3	50.7	20.2	42.6	31.4	16.6	27.1	17.9
Interior counties	64.8	38.3	37.1	30.5	50.4	54.8	4.7	11.3	8.1
Central California	51.4	31.9	42.7	25.4	37.1	43.1	23.2	31.0	14.2
San Francisco	47.4	31.4	40.7	20.1	28.8	39.8	32.5	39.8	19.5
Other bay counties	52.1	31.1	43.3	25.9	39.1	40.5	22.0	29.8	16.2
Coast counties	55.9	32.0	45.4	27.6	40.5	42.6	16.5	27.5	12.0
Interior counties	53.5	33.1	42.3	30.5	41.4	49.6	16.0	25.5	8.1
Southern California	21.5	11.0	16.1	62.6	65.9	73.1	15.9	23.1	10.8
Los Angeles	18.8	9.3	12.9	64.2	65.9	74.2	17.0	24.8	12.9
Other counties	27.0	13.6	21.7	59.4	65.9	71.2	13.6	20.5	7.1
Northern and Central California	53.2	32.2	42.9	25.4	38.7	43.0	21.4	29.1	14.1
Coast counties	52.0	31.3	43.5	23.3	36.4	39.8	24.7	32.3	16.7
Interior counties	56.3	34.4	41.3	30.5	43.7	50.6	13.2	21.9	8.1
Metropolitan area	49.7	31.2	42.3	22.9	34.4	40.3	27.4	34.4	17.4
Rural counties	57.3	33.2	43.4	28.2	42.8	46.3	14.5	24.0	10.3

TABLE 12.—*Per Cent Distribution, by Nativity, of White Brides classified by Marital Condition, for Geographic Divisions: 1907 and 1906—Continued.*

GEOGRAPHIC DIVISION.	White Brides.								
	Per Cent Born in California Among the—			Per Cent Born in Other States Among the—			Per Cent Foreign Born Among the—		
	Single.	Widowed.	Divorced	Single.	Widowed.	Divorced	Single.	Widowed.	Divorced
1906.									
THE STATE	44.3	24.0	35.1	37.3	49.4	52.8	18.4	26.6	12.1
Northern California	66.7	31.1	48.2	22.5	51.3	45.2	10.8	17.6	6.6
Coast counties	63.7	29.8	41.3	20.5	47.9	46.7	15.8	22.3	12.0
Interior counties	69.8	32.4	56.5	24.6	54.3	43.5	5.6	13.3	-------
Central California	52.6	29.6	43.1	26.3	39.3	43.3	21.1	31.1	13.6
San Francisco	49.4	27.6	41.5	20.7	33.4	41.1	29.9	39.0	17.4
Other bay counties	53.1	31.0	43.1	25.9	35.5	40.4	21.0	33.5	16.5
Coast counties	55.9	30.4	48.1	28.3	44.3	42.6	15.8	25.3	9.3
Interior counties	53.8	28.9	42.3	32.2	47.9	50.4	14.0	23.2	7.3
Southern California	21.4	12.6	15.6	62.9	65.9	73.6	15.7	21.5	10.8
Los Angeles	18.5	11.3	15.2	65.0	68.6	73.2	16.5	20.1	11.6
Other counties	27.7	14.9	16.1	58.3	61.2	74.4	14.0	23.9	9.5
Northern and Central California	54.6	29.8	43.7	25.8	41.0	43.6	19.6	29.2	12.7
Coast counties	53.4	29.8	43.2	23.9	37.5	41.5	22.7	32.7	15.3
Interior counties	57.7	29.8	45.1	30.3	49.5	49.0	12.0	20.7	5.9
Metropolitan area	51.4	29.7	42.4	23.4	34.7	40.7	25.2	35.6	16.9
Rural counties	58.2	29.9	45.3	28.3	48.0	47.1	13.5	22.1	7.6

This table shows that in 1907 and 1906, respectively, the per cents born in California were 43.5 and 44.3 among the single white brides; 33.6 and 35.1 among the divorced; and 25.0 and 24.0 among the widowed. In all parts of the State both years the native daughters formed the bulk of the single brides and a large proportion of the divorced, but a small proportion of the widowed. The sole exception is that in the interior counties of Northern California in 1907 the per cent born in California was slightly higher for the widows than for the divorcees remarrying.

The per cents born in the Golden State among the single, widowed and divorced brides were very much less for Southern California each year than for Northern or Central California. The per cents born in California were also less for Los Angeles in all cases than for the other counties south of Tehachapi, and were likewise less for the metropolitan area than for the rural counties north of Tehachapi. Except that in 1907 alone the per cent born in California was greater among the widowed brides in San Francisco than in the other bay counties, the rule is also that the proportion of native daughters among each class of brides is less for the metropolis proper than for the surrounding suburbs.

In 1907 and 1906, respectively, the per cents born in other states than California were 53.5 and 52.8 among the divorced and 47.9 and 49.4 among the widowed, as compared with only 36.8 and 37.3 among the single white brides. In the coast counties of Northern California in 1907 and in the interior counties of Northern California and the coast counties of Central California in 1906 alone, the per cent born in other states was greater among widowed than divorced brides. But for every other geographic division each year a larger proportion of the divorcees than of the widows remarrying were born elsewhere in the United States than California. In Los Angeles the per cents born in other states were no less than 74.2 and 73.2 among the divorced brides in 1907 and 1906, and 65.9 and 68.6 among the widowed; for the other counties south of Tehachapi the per cents for divorcees were 71.2 and 74.4, and for widows 65.9 and 61.2.

The per cents born in other states among single, widowed and divorced brides were much greater each year for Southern California than for Northern or Central California. North of Tehachapi the per cents born in other states were less among brides of each class in the metropolitan area than in the rural counties, and were also less in San Francisco in all cases than in the other bay counties (except that in 1906 the per cent born in other states was slightly greater among divorcees in the metropolis than in the suburbs). Generally speaking, the per cents born elsewhere in the United States were greater for Los Angeles than for the other counties south of Tehachapi, though among divorcees remarrying in 1906 the per cent was somewhat less for Los Angeles than for the other counties.

The per cents foreign born in 1907 and 1906, respectively, were 27.1 and 26.6 among the widowed, as compared with 19.7 and 18.4 among the single white brides and only 12.9 and 12.1 among the divorced. In the coast and interior counties of Northern California in 1907 alone, the per cents foreign born were somewhat greater among the divorced than among the single brides, being greatest as usual among the widowed. As a rule, though, the per cent of foreign born brides was highest in every instance each year among the widowed, next highest among the single, and lowest of all among the divorced.

The per cents foreign born were higher in all cases for San Francisco than for the other bay counties, and likewise higher for the metropolitan area than for the rural counties north of Tehachapi. In 1906 alone the per cent foreign born among widowed brides was somewhat less for Los Angeles than for the other counties south of Tehachapi, but as a rule the per cent foreign born was higher among all classes of brides in Los Angeles than in the rest of Southern California.

Of all the single brides in 1907 and 1906, the per cents born in California were 43.5 and 44.3; the per cents born in other states were 36.8 and 37.3; and the per cents foreign born were only 19.7 and 18.4. That is, the California girls form the bulk of the single brides and those born in other states form a considerable proportion, while comparatively few single brides in this State were foreign born.

Of all the widows remarrying in 1907 and 1906, the per cents born elsewhere in the United States than California were 47.9 and 49.4; the per cents foreign born were 27.1 and 26.6; and the per cents born in California were 25.0 and 24.0. As compared with the per cent distributions of all white brides taken together, the per cents among the widowed brides are very high for those born outside California, whether in other states or foreign countries, while the per cents are relatively very low for the widowed brides born in the Golden State.

Of all the divorcees remarrying in 1907 and 1906, the per cents born in other states were no less than 53.5 and 52.8; the per cents born in California were 33.6 and 35.1; and the per cents foreign born were only 12.9 and 12.1. In other words, American women born in other states comprise the great bulk of the divorced brides in California, and while the native daughters form a considerable proportion of the divorcees remarrying, the foreign born constitute a very small proportion indeed.

Conclusion.—That the native daughters should constitute the bulk of the single brides necessarily follows from the fact that most of the marriageable young women in this State were born here, and incidentally from the fact that the sunny climate makes California girls especially attractive. That the great bulk of the widowed brides were born outside California, and only a comparatively small proportion were born within the Golden State, would naturally be expected from the fact that very few women born in California are old enough to have been married and become widows, so that nearly all the widows remarrying here must necessarily have come from other states or foreign countries. The very great disparity between the proportions for the American born and the foreign born among divorced brides is evidently due to a difference in the attitude toward divorce and remarriage between the American and foreign elements of the white population.

TABLE 13.—*Marriages classified by Number in Order and Marital Condition*

COUNTY.	Total Marriages.	Number of Marriage.				Groom.		
		1st of Both Parties.	1st of Gro'm Only.	1st of Bride Only.	2d or Over of Both.	Single.	Widowed.	Divorc'd
THE STATE	23,005	17,253	2,320	1,742	1,690	19,573	2,108	1,324
Northern California	2,278	1,754	206	157	161	1,960	198	120
Coast counties	1,168	897	106	82	83	1,003	107	58
Del Norte	8	5	1	------	2	6	1	1
Humboldt	320	243	26	24	27	269	31	20
Lake	34	26	2	3	3	28	3	3
Mendocino	191	148	20	13	10	168	13	10
Napa	206	157	17	16	16	174	28	4
Sonoma	398	310	37	26	25	347	31	20
Trinity	11	8	3	------	------	11	-----	-----
Interior counties	1,110	857	100	75	78	957	91	62
Butte	222	171	23	9	19	194	15	13
Colusa	34	28	2	3	1	30	2	2
Glenn	40	35	2	1	2	37	2	1
Lassen	27	23	1	2	1	24	2	1
Modoc	38	31	2	2	3	33	3	2
Nevada	117	93	7	10	7	100	9	8
Placer	90	71	8	6	5	79	8	3
Plumas	21	15	3	2	1	18	1	2
Shasta	144	105	24	7	8	129	9	6
Sierra	8	8	------	------	------	8	-----	-----
Siskiyou	120	88	11	9	12	99	10	11
Sutter	29	21	2	4	2	23	5	1
Tehama	124	95	7	10	12	102	15	7
Yuba	96	73	8	10	5	81	10	5
Central California	13,450	10,264	1,354	945	887	11,618	1,087	745
San Francisco	4,158	3,316	372	281	189	3,688	279	191
Other bay counties	4,169	3,045	466	345	313	3,511	368	290
Alameda	3,009	2,258	300	247	204	2,558	263	188
Contra Costa	200	165	18	8	9	183	13	4
Marin	703	450	112	68	73	562	69	72
San Mateo	257	172	36	22	27	208	23	26
Coast counties	1,697	1,299	169	108	121	1,468	144	85
Monterey	196	162	22	8	4	184	9	3
San Benito	47	37	3	4	3	40	5	2
San Luis Obispo	196	159	14	9	14	173	17	6
Santa Clara	961	711	100	71	79	811	93	57
Santa Cruz	297	230	30	16	21	260	20	17
Interior counties	3,426	2,604	347	211	264	2,951	296	179
Alpine	------	------	------	------	------	------	-----	-----
Amador	66	50	9	3	4	59	3	4
Calaveras	52	39	5	5	3	44	4	4
El Dorado	45	33	6	4	2	39	2	4
Fresno	630	495	56	42	37	551	54	25
Inyo	40	32	2	2	4	34	4	2
Kern	206	155	22	17	12	177	17	12
Kings	144	116	9	6	13	125	14	5
Madera	59	39	11	4	5	50	8	1
Mariposa	15	11	3	------	1	14	1	-----
Merced	81	65	6	6	4	71	9	1
Mono	5	4	1	------	------	5	-----	-----
Sacramento	950	689	124	56	81	813	72	65
San Joaquin	470	350	44	34	42	394	45	31
Solano	154	124	15	6	9	139	12	3
Stanislaus	104	75	11	9	9	86	10	8
Tulare	250	196	15	12	27	211	30	9
Tuolumne	62	50	3	3	6	53	6	3
Yolo	93	81	5	2	5	86	5	2

of Parties, with Per Cents, for Counties arranged Geographically: 1907.

Bride.			Per Cent of Marriages.				Per Cent of Grooms.			Per Cent of Brides.		
Single.	Widowed.	Divorced.	1st of Both Parties.	1st of Gro'm Only.	1st of Bride Only.	2d or Over of Both.	Single.	Widowed.	Divorc'd	Single	Widowed.	Divorc'd
18,995	2,312	1,698	75.0	10.1	7.6	7.3	85.1	9.2	5.7	82.6	10.0	7.4
1,911	238	129	77.0	9.0	6.9	7.1	86.0	8.7	5.3	83.9	10.4	5.7
979	122	67	76.8	9.1	7.0	7.1	85.9	9.1	5.0	83.8	10.5	5.7
5	2	1	62.5	12.5	-----	25.0	75.0	12.5	12.5	62.5	25.0	12.5
267	30	23	76.0	8.1	7.5	8.4	84.1	9.7	6.2	83.4	9.4	7.2
29	3	2	76.5	5.9	8.8	8.8	82.4	8.8	8.8	85.3	8.8	5.9
161	21	9	77.5	10.5	6.8	5.2	88.0	6.8	5.2	84.3	11.0	4.7
173	20	13	76.2	8.2	7.8	7.8	84.5	13.6	1.9	84.0	9.7	6.3
336	44	18	77.9	9.3	6.5	6.3	87.2	7.8	5.0	84.4	11.1	4.5
8	2	1	72.7	27.3	-----	-----	100.0	-----	-----	72.7	18.2	9.1
932	116	62	77.2	9.0	6.8	7.0	86.2	8.2	5.6	84.0	10.4	5.6
180	26	16	77.0	10.4	4.0	8.6	87.4	6.8	5.8	81.1	11.7	7.2
31	1	2	82.4	5.9	8.8	2.9	88.2	5.9	5.9	91.2	2.9	5.9
36	3	1	87.5	5.0	2.5	5.0	92.5	5.0	2.5	90.0	7.5	2.5
25	2	-----	85.2	3.7	7.4	3.7	88.9	7.4	3.7	92.6	7.4	-----
33	3	2	81.6	5.3	5.2	7.9	86.8	7.9	5.3	86.8	7.9	5.3
103	9	5	79.5	6.0	8.5	6.0	85.5	7.7	6.8	88.0	7.7	4.3
77	10	3	78.9	8.9	6.7	5.5	87.8	8.9	3.3	85.6	11.1	3.3
17	2	2	71.4	14.3	9.5	4.8	85.7	4.8	9.5	81.0	9.5	9.5
112	22	10	72.9	16.7	4.9	5.5	89.6	6.2	4.2	77.8	15.3	6.9
8	-----	-----	100.0	-----	-----	-----	100.0	-----	-----	100.0	-----	-----
97	15	8	73.3	9.2	7.5	10.0	82.5	8.3	9.2	80.8	12.5	6.7
25	1	3	72.4	6.9	13.8	6.9	79.3	17.2	3.5	86.2	3.5	10.3
105	12	7	76.6	5.6	8.1	9.7	82.3	12.1	5.6	84.7	9.7	5.6
83	10	3	76.1	8.3	10.4	5.2	84.4	10.4	5.2	86.5	10.4	3.1
11,209	1,273	968	76.3	10.1	7.0	6.6	86.4	8.1	5.5	83.3	9.5	7.2
3,597	337	224	79.8	8.9	6.8	4.5	88.7	6.7	4.6	86.5	8.1	5.4
3,390	409	370	73.0	11.2	8.3	7.5	84.2	8.8	7.0	81.3	9.8	8.9
2,505	280	224	75.0	10.0	8.2	6.8	85.0	8.7	6.3	83.3	9.3	7.4
173	16	11	82.5	9.0	4.0	4.5	91.5	6.5	2.0	86.5	8.0	5.5
518	87	98	64.0	15.9	9.7	10.4	80.0	9.8	10.2	73.7	12.4	13.9
194	26	37	66.9	14.0	8.6	10.5	80.9	9.0	10.1	75.5	10.1	14.4
1,407	181	109	76.5	10.0	6.4	7.1	86.5	8.5	5.0	82.9	10.7	6.4
170	18	8	82.7	11.2	4.1	2.0	93.9	4.6	1.5	86.7	9.2	4.1
41	2	4	78.7	6.4	8.5	6.4	85.1	10.6	4.3	87.2	4.3	8.5
168	17	11	81.1	7.2	4.6	7.1	88.3	8.7	3.0	85.7	8.7	5.6
782	112	67	74.0	10.4	7.4	8.2	84.4	9.7	5.9	81.4	11.6	7.0
246	32	19	77.4	10.1	5.4	7.1	87.6	6.7	5.7	82.8	10.8	6.4
2,815	346	265	76.0	10.1	6.2	7.7	86.1	8.7	5.2	82.2	10.1	7.7
53	5	8	75.8	13.6	4.5	6.1	89.4	4.5	6.1	80.3	7.6	12.1
44	4	4	75.0	9.6	9.6	5.8	84.6	7.7	7.7	84.6	7.7	7.7
37	6	2	73.3	13.3	8.9	4.5	86.7	4.4	8.9	82.2	13.3	4.5
537	61	32	78.6	8.9	6.6	5.9	87.4	8.6	4.0	85.2	9.7	5.1
34	4	2	80.0	5.0	5.0	10.0	85.0	10.0	5.0	85.0	10.0	5.0
172	17	17	75.2	10.7	8.3	5.8	85.9	8.3	5.8	83.5	8.3	8.2
122	12	10	80.6	6.2	4.2	9.0	86.8	9.7	3.5	84.7	8.3	7.0
43	9	7	66.1	18.6	6.8	8.5	84.7	13.6	1.7	72.9	15.2	11.9
11	3	1	73.3	20.0	-----	6.7	93.3	6.7	-----	73.3	20.0	6.7
71	6	4	80.3	7.4	7.4	4.9	87.7	11.1	1.2	87.7	7.4	4.9
4	1	-----	80.0	20.0	-----	-----	100.0	-----	-----	80.0	20.0	-----
745	101	104	72.5	13.1	5.9	8.5	85.6	7.6	6.8	78.4	10.6	11.0
384	50	36	74.5	9.4	7.2	8.9	83.8	9.6	6.6	81.7	10.6	7.7
130	17	7	80.5	9.7	3.9	5.9	90.3	7.8	1.9	84.4	11.0	4.6
84	14	6	72.1	10.6	8.7	8.6	82.7	9.6	7.7	80.8	13.4	5.8
208	24	18	78.4	6.0	4.8	10.8	84.4	12.0	3.6	83.2	9.6	7.2
53	7	2	80.7	4.8	4.8	9.7	85.5	9.7	4.8	85.5	11.3	3.2
83	5	5	87.1	5.4	2.1	5.4	92.5	5.4	2.1	89.2	5.4	5.4

TABLE 13.—*Marriages classified by Number in Order and Marital Condition of*

COUNTY.	Total Marriages.	Number of Marriage.				Groom.		
		1st of Both Parties.	1st of Gro'm Only.	1st of Bride Only.	2d or Over of Both.	Single.	Widowed.	Divorc'd
Southern California	7,277	5,235	760	640	642	5,995	823	459
Los Angeles	4,847	3,541	479	418	409	4,020	540	287
Other counties	2,430	1,694	281	222	233	1,975	283	172
Orange	638	426	93	58	61	519	86	33
Riverside	299	207	28	35	29	235	36	28
San Bernardino	458	332	42	39	45	374	55	29
San Diego*	628	433	75	50	70	508	65	55
Santa Barbara	274	190	33	29	22	223	28	23
Ventura	133	106	10	11	6	116	13	4
Northern and Central California	15,728	12,018	1,560	1,102	1,048	13,578	1,285	865
Coast counties	11,192	8,557	1,113	816	706	9,670	898	624
Interior counties	4,536	3,461	447	286	342	3,908	387	241
Metropolitan area	8,327	6,361	838	626	502	7,199	647	481
Rural counties	7,401	5,657	722	476	546	6,379	638	384

* Includes 5 marriages in Imperial County, formed August 15, 1907.

Parties, with Per Cents, for Counties arranged Geographically: 1907—Continued.

Bride.			Per Cent of Marriages.				Per Cent of Grooms.			Per Cent of Brides.		
Single.	Wid-owed.	Di-vorced.	1st of Both Parties.	1st of Gro'm Only.	1st of Bride Only.	2d or Over of Both.	Single.	Wid-owed.	Di-vorc'd	Single	Wid-owed.	Di-vorc'd
5,875	801	601	71.9	10.5	8.8	8.8	82.4	11.3	6.3	80.7	11.0	8.3
3,959	508	385	73.1	9.9	8.6	8.4	82.9	11.2	5.9	81.7	10.4	7.9
1,916	298	216	69.7	11.6	9.1	9.6	81.3	11.6	7.1	78.8	12.3	8.9
484	89	65	66.8	14.6	9.1	9.5	81.3	13.5	5.2	75.9	13.9	10.2
242	31	26	69.2	9.4	11.7	9.7	78.6	12.0	9.4	80.9	10.4	8.7
371	52	35	72.5	9.2	8.5	9.8	81.7	12.0	6.3	81.0	11.4	7.6
483	90	55	68.9	11.9	8.0	11.2	80.9	10.3	8.8	76.9	14.3	8.8
219	31	24	69.3	12.1	10.6	8.0	81.4	10.2	8.4	79.9	11.3	8.8
117	5	11	79.7	7.5	8.3	4.5	87.2	9.8	3.0	88.0	3.7	8.3
13,120	1,511	1,097	76.4	9.9	7.0	6.7	86.3	8.2	5.5	83.4	9.6	7.0
9,373	1,049	770	76.5	9.9	7.3	6.3	86.4	8.0	5.6	83.7	9.4	6.9
3,747	462	327	76.3	9.9	6.3	7.5	86.2	8.5	5.3	82.6	10.2	7.2
6,987	746	594	76.4	10.1	7.5	6.0	86.4	7.8	5.8	83.9	9.0	7.1
6,133	765	503	76.4	9.8	6.4	7.4	86.2	8.6	5.2	82.9	10.3	6.8

TABLE 14.—*Marriages classified by Number in Order and Marital Condition*

COUNTY.	Total Marriages.	Number of Marriage.				Groom.		
		1st of Both Parties.	1st of Gro'm Only.	1st of Bride Only.	2d or Over of Both.	Single.	Widowed.	Divorc'd
THE STATE	21,317	15,790	2,238	1,674	1,615	18,028	1,988	1,301
Northern California	2,077	1,600	201	133	143	1,801	197	79
Coast counties	1,047	809	101	67	70	910	95	42
Del Norte	12	10	1		1	11	1	
Humboldt	266	207	26	16	17	233	24	9
Lake	33	27		2	4	27	4	2
Mendocino	176	138	17	12	9	155	14	7
Napa	162	123	19	10	10	142	13	7
Sonoma	380	288	36	27	29	324	39	17
Trinity	18	16	2			18		
Interior counties	1,030	791	100	66	73	891	102	37
Butte	169	130	15	14	10	145	17	7
Colusa	38	32	2	1	3	34	2	2
Glenn	36	27	5	2	2	32	3	1
Lassen	33	27	1	3	2	28	4	1
Modoc	33	29	3		1	32	1	
Nevada	104	78	9	9	8	87	13	4
Placer	88	66	13	5	4	79	2	7
Plumas	21	20	1			21		
Shasta	161	116	23	7	15	139	16	6
Sierra	16	14	1		1	15	1	
Siskiyou	127	93	12	13	9	105	17	5
Sutter	33	25	2	3	3	27	5	1
Tehama	89	66	8	5	10	74	13	2
Yuba	82	68	5	4	5	73	8	1
Central California	12,573	9,377	1,362	946	888	10,739	1,054	780
San Francisco	3,539	2,742	353	255	189	3,095	261	183
Other bay counties	4,217	3,026	515	336	340	3,541	376	300
Alameda	3,019	2,247	312	231	229	2,559	265	195
Contra Costa	196	152	24	9	11	176	15	5
Marin	750	460	140	70	80	600	73	77
San Mateo	252	167	39	26	20	206	23	23
Coast counties	1,642	1,208	172	144	118	1,380	146	116
Monterey	174	128	19	14	13	147	15	12
San Benito	58	48	3	4	3	51	3	4
San Luis Obispo	185	147	18	16	4	165	16	4
Santa Clara	956	699	100	84	73	799	78	79
Santa Cruz	269	186	32	26	25	218	34	14
Interior counties	3,175	2,401	322	211	241	2,723	271	181
Alpine	1	1				1		
Amador	74	59	10	4	1	69	3	2
Calaveras	41	34	4	1	2	38	2	1
El Dorado	48	44	3	1		47	1	
Fresno	549	432	39	30	48	471	53	25
Inyo	13	12	1			13		
Kern	152	105	20	14	13	125	17	10
Kings	120	99	7	9	5	106	11	3
Madera	49	39	7	1	2	46	2	1
Mariposa	17	17				17		
Merced	80	66	7	4	3	73	5	2
Mono	4	3			1	3		1
Sacramento	834	611	98	61	64	709	67	58
San Joaquin	520	357	69	47	47	426	46	48
Solano	186	133	21	13	19	154	20	12
Stanislaus	100	83	8	3	6	91	7	2
Tulare	222	178	17	12	15	195	19	8
Tuolumne	60	44	3	5	8	47	10	3
Yolo	105	84	8	6	7	92	8	5

of Parties, with Per Cents, for Counties arranged Geographically: 1906.

Bride.			Per Cent of Marriages.				Per Cent of Grooms.			Per Cent of Brides.		
Single.	Widowed.	Divorced.	1st of Both Parties.	1st of Gro'm Only.	1st of Bride Only.	2d or Over of Both.	Single.	Widowed.	Divorc'd	Single	Widowed.	Divorc'd
17,464	2,174	1,679	74.1	10.5	7.8	7.6	84.6	9.3	6.1	81.9	10.2	7.9
1,733	206	138	77.0	9.7	6.4	6.9	86.7	9.5	3.8	83.4	9.9	6.7
876	96	75	77.3	9.6	6.4	6.7	86.9	9.1	4.0	83.7	9.2	7.1
10	1	1	83.3	8.4	-----	8.3	91.7	8.3	-----	83.3	8.4	8.3
223	25	18	77.8	9.8	6.0	6.4	87.6	9.0	3.4	83.8	9.4	6.8
29	1	3	81.8	-----	6.1	12.1	81.8	12.1	6.1	87.9	3.0	9.1
150	13	13	78.4	9.7	6.8	5.1	88.1	7.9	4.0	85.2	7.4	7.4
133	14	15	75.9	11.7	6.2	6.2	87.7	8.0	4.3	82.1	8.6	9.3
315	40	25	75.8	9.5	7.1	7.6	85.3	10.2	4.5	82.9	10.5	6.6
16	2	-----	88.9	11.1	-----	-----	100.0	-----	-----	88.9	11.1	-----
857	110	63	76.8	9.7	6.4	7.1	86.5	9.9	3.6	83.2	10.7	6.1
144	17	8	76.9	8.9	8.3	5.9	85.8	10.1	4.1	85.2	10.1	4.7
33	4	1	84.2	5.3	2.6	7.9	89.5	5.3	5.2	86.9	10.5	2.6
29	5	2	75.0	13.9	5.6	5.5	88.9	8.3	2.8	80.6	13.9	5.5
30	3	-----	81.8	3.0	9.1	6.1	84.9	12.1	3.0	90.9	9.1	-----
29	3	1	87.9	9.1	-----	3.0	97.0	3.0	-----	87.9	9.1	3.0
87	10	7	75.0	8.7	8.6	7.7	83.7	12.5	3.8	83.7	9.6	6.7
71	10	7	75.0	14.8	5.7	4.5	89.8	2.3	7.9	80.7	11.4	7.9
20	1	-----	95.2	4.8	-----	-----	100.0	-----	-----	95.2	4.8	-----
123	21	17	72.1	14.3	4.3	9.3	86.4	9.9	3.7	76.4	13.0	10.6
14	1	1	87.5	6.3	-----	6.2	93.8	6.2	-----	87.5	6.3	6.2
106	13	8	73.2	9.5	10.2	7.1	82.7	13.4	3.9	83.5	10.2	6.3
28	2	3	75.7	6.1	9.1	9.1	81.8	15.2	3.0	84.8	6.1	9.1
71	13	5	74.2	9.0	5.6	11.2	83.1	14.6	2.3	79.8	14.6	5.6
72	7	3	82.9	6.1	4.9	6.1	89.0	9.8	1.2	87.8	8.5	3.7
10,323	1,228	1,022	74.6	10.8	7.5	7.1	85.4	8.4	6.2	82.1	9.8	8.1
2,997	293	249	77.5	10.0	7.2	5.3	87.4	7.4	5.2	84.7	8.3	7.0
3,362	462	393	71.7	12.2	8.0	8.1	84.0	8.9	7.1	79.7	11.0	9.3
2,478	301	240	74.4	10.3	7.7	7.6	84.7	8.8	6.5	82.1	10.0	7.9
161	22	13	77.6	12.2	4.6	5.6	89.8	7.7	2.5	82.2	11.2	6.6
530	111	109	61.3	18.7	9.3	10.7	80.0	9.7	10.3	70.7	14.8	14.5
193	28	31	66.3	15.5	10.3	7.9	81.8	9.1	9.1	76.6	11.1	12.3
1,352	161	129	73.6	10.5	8.8	7.1	84.0	8.9	7.1	82.3	9.8	7.9
142	19	13	73.6	10.9	8.0	7.5	84.5	8.6	6.9	81.6	10.9	7.5
52	4	2	82.7	5.2	6.9	5.2	87.9	5.2	6.9	89.7	6.9	3.4
163	16	6	79.5	9.7	8.6	2.2	89.2	8.6	2.2	88.1	8.7	3.4
783	86	87	73.1	10.5	8.8	7.6	83.6	8.1	8.3	81.9	9.0	9.1
212	36	21	69.1	11.9	9.7	9.3	81.1	12.6	6.3	78.8	13.4	7.8
2,612	312	251	75.6	10.1	6.7	7.6	85.8	8.5	5.7	82.3	9.8	7.9
1	-----	-----	100.0	-----	-----	-----	100.0	-----	-----	100.0	-----	-----
63	10	1	79.7	13.5	5.4	1.4	93.2	4.1	2.7	85.1	13.5	1.4
35	3	3	82.9	9.8	2.4	4.9	92.7	4.9	2.4	85.4	7.3	7.3
45	1	2	91.7	6.2	2.1	-----	97.9	2.1	-----	93.7	2.1	4.2
462	55	32	78.7	7.1	5.5	8.7	85.8	9.7	4.5	84.2	10.0	5.8
12	1	-----	92.3	7.7	-----	-----	100.0	-----	-----	92.3	7.7	-----
119	20	13	69.1	13.2	9.2	8.5	82.2	11.2	6.6	78.3	13.2	8.5
108	6	6	82.5	5.8	7.5	4.2	88.3	9.2	2.5	90.0	5.0	5.0
40	5	4	79.6	14.3	2.0	4.1	93.9	4.1	2.0	81.6	10.2	8.2
17	-----	-----	100.0	-----	-----	-----	100.0	-----	-----	100.0	-----	-----
70	6	4	82.5	8.8	5.0	3.7	91.3	6.2	2.5	87.5	7.5	5.0
3	-----	1	75.0	-----	-----	25.0	75.0	-----	25.0	75.0	-----	25.0
672	84	78	73.3	11.7	7.3	7.7	85.0	8.0	7.0	80.6	10.1	9.3
404	61	55	68.7	13.3	9.0	9.0	81.9	8.9	9.2	77.7	11.7	10.6
146	19	21	71.5	11.3	7.0	10.2	82.8	10.8	6.4	78.5	10.2	11.3
86	7	7	83.0	8.0	3.0	6.0	91.0	7.0	2.0	86.0	7.0	7.0
190	18	14	80.2	7.7	5.4	6.7	87.8	8.6	3.6	85.6	8.1	6.3
49	9	2	73.4	5.0	8.3	13.3	78.3	16.7	5.0	81.7	15.0	3.3
90	7	8	80.0	7.6	5.7	6.7	87.6	7.6	4.8	85.7	6.7	7.6

TABLE 14.—*Marriages classified by Number in Order and Marital Condition of*

COUNTY.	Total Marriages.	Number of Marriage.				Groom.		
		1st of Both Parties.	1s o f Gro'm Only.	1st of Bride Only.	2d or Over of Both.	Single.	Widowed.	Divorc'd
Southern California	6,667	4,813	675	595	584	5,488	737	442
Los Angeles	4,506	3,329	417	383	377	3,746	470	290
Other counties	2,161	1,484	258	212	207	1,742	267	152
Orange	524	342	71	54	57	413	65	46
Riverside	287	214	31	24	18	245	27	15
San Bernardino	404	287	38	38	41	325	54	25
San Diego	581	387	74	63	57	461	83	37
Santa Barbara	236	161	26	26	23	187	25	24
Ventura	129	93	18	7	11	111	13	5
Northern and Central California	14,650	10,977	1,563	1,079	1,031	12,540	1,251	859
Coast counties	10,445	7,785	1,141	802	717	8,926	878	641
Interior counties	4,205	3,192	422	277	314	3,614	373	218
Metropolitan area	7,756	5,768	868	591	529	6,636	637	483
Rural counties	6,894	5,209	695	488	502	5,904	614	376

Parties, with Per Cents, for Counties arranged Geographically: 1906—Continued.

Bride.			Per Cent of Marriages.				Per Cent of Grooms.			Per Cent of Brides.		
Single.	Wid-owed.	Di-vorced.	1st of Both Parties.	1st of Gro'm Only.	1st of Bride Only.	2d or Over of Both.	Single.	Wid-owed.	Di-vorc'd	Single	Wid-owed.	Di-vorc'd
5,408	740	519	72.2	10.1	8.9	8.8	82.3	11.1	6.6	81.1	11.1	7.8
3,712	480	314	73.9	9.2	8.5	8.4	83.2	10.4	6.4	82.4	10.6	7.0
1,696	260	205	68.7	11.9	9.8	9.6	80.6	12.4	7.0	78.5	12.0	9.5
396	62	66	65.3	13.5	10.3	10.9	78.8	12.4	8.8	75.6	11.8	12.6
238	25	24	74.5	10.8	8.4	6.3	85.4	9.4	5.2	82.9	8.7	8.4
325	47	32	71.0	9.4	9.4	10.2	80.4	13.4	6.2	80.5	11.6	7.9
450	78	53	66.6	12.7	10.9	9.8	79.3	14.3	6.4	77.5	13.4	9.1
187	28	21	68.2	11.0	11.0	9.8	79.2	10.6	10.2	79.2	11.9	8.9
100	20	9	72.1	14.0	5.4	8.5	86.0	10.1	3.9	77.5	15.5	7.0
12,056	1,434	1,160	74.9	10.7	7.4	7.0	85.6	8.5	5.9	82.3	9.8	7.9
8,587	1,012	846	74.5	10.9	7.7	6.9	85.5	8.4	6.1	82.2	9.7	8.1
3,469	422	314	75.9	10.0	6.6	7.5	85.9	8.9	5.2	82.5	10.0	7.5
6,359	755	642	74.4	11.2	7.6	6.8	85.6	8.2	6.2	82.0	9.7	8.3
5,697	679	518	75.5	10.1	7.1	7.3	85.6	8.9	5.5	82.6	9.9	7.5

TABLE 15.—*Brides classified by Race, Nativity, and Marital Condition, with Per Cent Distribution by Marital Condition, for Geographic Divisions: 1907.*

GEOGRAPHIC DIVISION.	Brides.				Per Cent.		
	Total.	Single.	Widowed	Divorced.	Single.	Widowed	Divorced.
THE STATE	23,005	18,995	2,312	1,698	82.6	10.0	7.4
White	22,592	18,693	2,240	1,659	82.7	9.9	7.4
Born in California	9,245	8,127	561	557	87.9	6.1	6.0
Born in other states*	8,842	6,883	1,072	887	77.9	12.1	10.0
Foreign born	4,505	3,683	607	215	81.7	13.5	4.8
Non-Caucasian	413	302	72	39	73.1	17.4	9.5
Northern California	2,278	1,911	238	129	83.9	10.4	5.7
White	2,256	1,890	237	129	83.8	10.5	5.7
Born in California	1,347	1,209	81	57	89.8	6.0	4.2
Born in other states*	641	476	110	55	74.2	17.2	8.6
Foreign born	268	205	46	17	76.5	17.2	6.3
Non-Caucasian	22	21	1	--------	95.5	4.5	--------
Coast counties	1,168	979	122	67	83.8	10.5	5.7
White	1,163	974	122	67	83.7	10.5	5.8
Born in California	686	615	37	34	89.6	5.4	5.0
Born in other states*	270	197	52	21	73.0	19.2	7.8
Foreign born	207	162	33	12	78.3	15.9	5.8
Non-Caucasian	5	5	--------	--------	100.0	--------	--------
Interior counties	1,110	932	116	62	84.0	10.4	5.6
White	1,093	916	115	62	83.8	10.5	5.7
Born in California	661	594	44	23	89.9	6.6	3.5
Born in other states*	371	279	58	34	75.2	15.6	9.2
Foreign Born	61	43	13	5	70.5	21.3	8.2
Non-Caucasian	17	16	1	--------	94.1	5.9	--------
Central California	13,450	11,209	1,273	968	83.3	9.5	7.2
White	13,253	11,053	1,246	954	83.4	9.4	7.2
Born in California	6,485	5,681	397	407	87.6	6.1	6.3
Born in other states*	3,683	2,809	463	411	76.3	12.6	11.1
Foreign born	3,085	2,563	386	136	83.1	12.5	4.4
Non-Caucasian	197	156	27	14	79.2	13.7	7.1
San Francisco	4,158	3,597	337	224	86.5	8.1	5.4
White	4,095	3,540	334	221	86.4	8.2	5.4
Born in California	1,872	1,677	105	90	89.6	5.6	4.8
Born in other states*	895	711	96	88	79.5	10.7	9.8
Foreign born	1,328	1,152	133	43	86.8	10.0	3.2
Non-Caucasian	63	57	3	3	90.5	4.8	4.7
Other bay counties	4,169	3,390	409	370	81.3	9.8	8.9
White	4,101	3,340	396	365	81.4	9.7	8.9
Born in California	2,020	1,739	123	158	86.1	6.1	7.8
Born in other states*	1,168	865	155	148	74.0	13.3	12.7
Foreign born	913	736	118	59	80.6	12.9	6.5
Non-Caucasian	68	50	13	5	73.5	19.1	7.4
Coast counties	1,697	1,407	181	109	82.9	10.7	6.4
White	1,680	1,394	178	108	83.0	10.6	6.4
Born in California	885	779	57	49	88.0	6.5	5.5
Born in other states*	503	385	72	46	76.5	14.3	9.2
Foreign born	292	230	49	13	78.8	16.8	4.4
Non-Caucasian	17	13	3	1	76.5	17.6	5.9
Interior counties	3,426	2,815	346	265	82.2	10.1	7.7
White	3,377	2,779	338	260	82.3	10.0	7.7
Born in California	1,708	1,486	112	110	87.0	6.6	6.4
Born in other states*	1,117	848	140	129	75.9	12.5	11.6
Foreign born	552	445	86	21	80.6	15.6	3.8
Non-Caucasian	49	36	8	5	73.5	16.3	10.2

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*Includes those of unknown nativity, numbering only 161, or 0.7 per cent of all in the entire State.

TABLE 15.—*Brides classified by Race, Nativity, and Marital Condition, with Per Cent Distribution by Marital Condition, for Geographic Divisions: 1907—Continued.*

GEOGRAPHIC DIVISION.	Brides.				Per Cent.		
	Total.	Single.	Widowed	Divorced.	Single.	Widowed	Divorced.
Southern California	7,277	5,875	801	601	80.7	11.0	8.3
White	7,083	5,750	757	576	81.2	10.7	8.1
Born in California	1,413	1,237	83	93	87.5	5.9	6.6
Born in other states*	4,518	3,598	499	421	79.6	11.1	9.3
Foreign born	1,152	915	175	62	79.4	15.2	5.4
Non-Caucasian	194	125	44	25	64.4	22.7	12.9
Los Angeles	4,847	3,959	503	385	81.7	10.4	7.9
White	4,696	3,868	464	364	82.4	9.9	7.7
Born in California	818	728	43	47	89.0	5.3	5.7
Born in other states*	3,057	2,481	306	270	81.2	10.0	8.8
Foreign born	821	659	115	47	80.3	14.0	5.7
Non-Caucasian	151	91	39	21	60.3	25.8	13.9
Other counties	2,430	1,916	298	216	78.8	12.3	8.9
White	2,387	1,882	293	212	78.8	12.3	8.9
Born in California	595	509	40	46	85.6	6.7	7.7
Born in other states*	1,461	1,117	193	151	76.5	13.2	10.3
Foreign born	331	256	60	15	77.4	18.1	4.5
Non-Caucasian	43	34	5	4	79.1	11.6	9.3
Northern and Central California	15,728	13,120	1,511	1,097	83.4	9.6	7.0
White	15,509	12,943	1,483	1,083	83.4	9.6	7.0
Born in California	7,832	6,890	478	464	88.0	6.1	5.9
Born in other states*	4,324	3,285	573	466	76.0	13.2	10.8
Foreign born	3,353	2,768	432	153	82.5	12.9	4.6
Non-Caucasian	219	177	28	14	80.8	12.8	6.4
Coast counties	11,192	9,373	1,049	770	83.7	9.4	6.9
White	11,039	9,248	1,030	761	83.8	9.3	6.9
Born in California	5,463	4,810	322	331	88.0	5.9	6.1
Born in other states*	2,836	2,158	375	303	76.1	13.2	10.7
Foreign born	2,740	2,280	333	127	83.2	12.2	4.6
Non-Caucasian	153	125	19	9	81.7	12.4	5.9
Interior counties	4,536	3,747	462	327	82.6	10.2	7.2
White	4,470	3,695	453	322	82.7	10.1	7.2
Born in California	2,369	2,080	156	133	87.8	6.6	5.6
Born in other states*	1,488	1,127	198	163	75.7	13.3	11.0
Foreign born	613	488	99	26	79.6	16.2	4.2
Non-Caucasian	66	52	9	5	78.8	13.6	7.6
Metropolitan area	8,327	6,987	746	594	83.9	9.0	7.1
White	8,196	6,880	730	586	83.9	8.9	7.2
Born in California	3,892	3,416	228	248	87.8	5.8	6.4
Born in other states*	2,063	1,576	251	236	76.4	12.2	11.4
Foreign born	2,241	1,888	251	102	84.2	11.2	4.6
Non-Caucasian	131	107	16	8	81.7	12.2	6.1
Rural counties	7,401	6,133	765	503	82.9	10.3	6.8
White	7,313	6,063	753	497	82.9	10.3	6.8
Born in California	3,940	3,474	250	216	88.2	6.3	5.5
Born in other states*	2,261	1,709	322	230	75.6	14.2	10.2
Foreign born	1,112	880	181	51	79.1	16.3	4.6
Non-Caucasian	88	70	12	6	79.6	13.6	6.8

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*Includes those of unknown nativity, numbering only 161, or 0.7 per cent of all in the entire State.

TABLE 16.—*Brides classified by Race, Nativity, and Marital Condition, with Per Cent Distribution by Marital Condition, for Geographic Divisions: 1906.*

GEOGRAPHIC DIVISION.	Brides.				Per Cent.		
	Total.	Single.	Widowed	Divorced.	Single.	Widow'd	Divorced.
THE STATE	21,317	17,464	2,174	1,679	81.9	10.2	7.9
White	20,955	17,209	2,104	1,642	82.1	10.1	.86
Born in California	8,710	7,628	505	577	87.6	5.8	6.4
Born in other states*	8,315	6,410	1,039	866	77.1	12.5	10.1
Foreign born	3,930	3,171	560	199	80.7	14.2	5.2
Non-Caucasian	362	255	70	37	70.5	19.3	10.7
Northern California	2,077	1,733	206	138	83.4	9.9	6.7
White	2,043	1,707	199	137	83.6	9.7	6.7
Born in California	1,266	1,138	62	66	89.9	4.9	5.2
Born in other states*	548	384	102	62	70.1	18.6	11.3
Foreign born	229	185	35	9	80.8	15.3	3.9
Non-Caucasian	34	26	7	1	76.5	20.6	2.9
Coast counties	1,047	876	96	75	83.7	9.2	7.1
White	1,041	872	94	75	83.8	9.0	7.2
Born in California	614	555	28	31	90.4	4.6	5.0
Born in other states*	259	179	45	35	69.1	17.4	13.5
Foreign born	168	138	21	9	82.1	12.5	5.4
Non-Caucasian	6	4	2	---------	66.7	33.3	---------
Interior counties	1,030	857	110	63	83.2	10.7	6.1
White	1,002	835	105	62	83.3	10.5	6.2
Born in California	652	583	34	35	89.4	5.2	5.4
Born in other states*	289	205	57	27	70.9	19.7	9.4
Foreign born	61	47	14	---------	77.0	23.0	---------
Non-Caucasian	28	22	5	1	78.6	17.8	3.6
Central California	12,573	10,323	1,228	1,022	82.1	9.8	8.1
White	12,381	10,179	1,198	1,004	82.2	9.7	8.1
Born in California	6,137	5,350	354	433	87.2	5.8	7.0
Born in other states*	3,584	2,678	471	435	74.7	13.2	12.1
Foreign born	2,660	2,151	373	136	80.9	14.0	5.1
Non-Caucasian	192	144	30	18	75.0	15.6	9.4
San Francisco	3,539	2,997	293	249	84.7	8.3	7.0
White	3,489	2,951	290	248	84.6	8.3	7.1
Born in California	1,642	1,459	80	103	88.8	4.9	6.3
Born in other states*	809	610	97	102	75.4	12.0	12.6
Foreign born	1,038	882	113	43	85.0	10.9	4.1
Non-Caucasian	50	46	3	1	92.0	6.0	2.0
Other bay counties	4,217	3,362	462	393	79.7	11.0	9.3
White	4,138	3,312	445	381	80.0	10.8	9.2
Born in California	2,060	1,758	138	164	85.3	6.7	8.0
Born in other states*	1,171	859	158	154	73.4	13.5	13.1
Foreign born	907	695	149	63	76.6	16.4	7.0
Non-Caucasian	79	50	17	12	63.3	21.5	15.2
Coast counties	1,642	1,352	161	129	82.3	9.8	7.9
White	1,632	1,345	158	129	82.4	9.7	7.9
Born in California	861	751	48	62	87.2	5.6	7.2
Born in other states*	506	381	70	55	75.3	13.8	10.9
Foreign born	265	213	40	12	80.4	15.1	4.5
Non-Caucasian	10	7	3	---------	70.0	30.0	---------
Interior counties	3,175	2,612	312	251	82.3	9.8	7.9
White	3,122	2,571	305	246	82.3	9.8	7.9
Born in California	1,574	1,382	88	104	87.8	5.6	6.6
Born in other states*	1,098	828	146	124	75.4	13.3	11.3
Foreign born	450	361	71	18	80.2	15.8	4.0
Non-Caucasian	53	41	7	5	77.4	13.2	9.4

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*Includes those of unknown nativity, numbering only 222, or 1.1 per cent of all in the entire State.

TABLE 16.—*Brides classified by Race Nativity, and Marital Condition, with Per Cent Distribution by Marital Condition, for Geographic Divisions: 1906—Continued.*

GEOGRAPHIC DIVISION.	Brides.				Per Cent.		
	Total.	Single.	Widowed	Divorced.	Single.	Widowed	Divorced.
Southern California	6,667	5,408	740	519	81.1	11.1	7.8
White	6,531	5,323	707	501	81.5	10.8	7.7
Born in California	1,307	1,140	89	78	87.2	6.8	6.0
Born in other states *	4,183	3,348	466	369	80.0	11.2	8.8
Foreign born	1,041	835	152	54	80.2	14.6	5.2
Non-Caucasian	136	85	33	18	62.5	24.3	13.2
Los Angeles	506	3,712	480	314	82.4	10.6	7.0
White	4,406	3,652	452	302	82.9	10.3	6.8
Born in California	4,774	677	51	46	87.5	6.6	5.9
Born in other states *	905	2,374	310	221	81.7	10.7	7.6
Foreign born	2,727	601	91	35	82.7	12.5	4.8
Non-Caucasian	100	60	28	12	60.0	28.0	12.0
Other counties	161	1,696	260	205	78.5	12.0	9.5
White	2,125	1,671	255	199	78.6	12.0	9.4
Born in California	2,533	463	38	32	86.9	7.1	6.0
Born in other states*	278	974	156	148	76.2	12.2	11.6
Foreign born	1,314	234	61	19	74.5	19.4	6.1
Non-Caucasian	36	25	5	6	69.4	13.9	16.7
Northern and Central California	14,650	12,056	1,434	1,160	82.3	9.8	7.9
White	14,424	11,886	1,397	1,141	82.4	9.7	7.9
Born in California	7,403	6,488	416	499	87.6	5.6	6.8
Born in other states*	4,132	3,062	573	497	74.1	13.9	12.0
Foreign born	2,889	2,336	408	145	80.9	14.1	5.0
Non-Caucasian	226	170	37	19	75.2	16.4	8.4
Coast counties	10,445	8,587	1,012	846	82.2	9.7	8.1
White	10,300	8,480	987	833	82.3	9.6	8.1
Born in California	5.177	4,523	294	360	87.4	5.7	6.9
Born in other states*	2,745	2,029	370	346	73.9	13.5	12.6
Foreign born	2,378	1,928	323	127	81.1	13.6	5.3
Non-Caucasian	145	107		13	73.8	17.2	9.0
			25				
Interior counties	4,205	3,469	422	314	82.5	10.0	7.5
White	4,124	3,406	410	308	82.6	9.9	7.5
Born in California	2,226	1,965	122	139	88.3	5.5	6.2
Born in other states*	1,387	1.033	203	151	74.5	14.6	10.9
Foreign born	511	408	85	18	79.9	16.6	3.5
Non-Caucasian	81	63	12	6	77.8	14.8	7.4
Metropolitan area	7,756	6,359	755	642	82.0	9.7	8.3
White	7,627	6,263	735	629	82.1	9.6	8.3
Born in California	3,702	3,217	218	267	86.9	5.9	7.2
Born in other states*	1,980	1,469	255	256	74.2	12.9	12.9
Foreign born	1,945	1,577	262	106	81.1	13.5	5.4
Non-Caucasian	129	96	20	13	74.4	15.5	10.1
					82.6	9.9	7.5
Rural counties	6,894	5,697	679	518			
White	6,797	5,623	662	512	82.7	9.8	7.5
Born in California	3,701	3,271	198	232	88.4	5.3	6.3
Born in other states*	2,152	1,593	318	241	74.0	14.8	11.2
Foreign born	944	759	146	39	80.4	15.5	4.1
Non-Caucasian	97	74	17	6	76.3	17.5	6.2

*Includes those of unknown nativity, numbering only 222, or 1.1 per cent of all in the entire State.

TABLE 17.—*White Brides classified by Marital Condition and Nativity, with Per Cent Distribution by Nativity, for Geographic Divisions: 1907.*

GEOGRAPHIC DIVISION.	White Brides.				Per Cent.		
	Total.	Born in California.	Born in Other States.*	Foreign Born.	Born in California.	Born in Other States.	Foreign Born.
THE STATE	22,592	9,245	8,842	4,505	40.9	39.2	19.9
Single	18,693	8,127	6,883	3,683	43.5	36.8	19.7
Widowed	2,240	561	1,072	607	25.0	47.9	27.1
Divorced	1,659	557	887	215	33.6	53.5	12.9
Northern California	2,256	1,347	641	268	59.7	28.4	11.9
Single	1,890	1,209	476	205	64.0	25.2	10.8
Widowed	237	81	110	46	34.2	46.4	19.4
Divorced	129	57	55	17	44.2	42.6	13.2
Coast counties	1,163	686	270	207	59.0	23.2	17.8
Single	974	615	197	162	63.2	20.2	16.6
Widowed	122	37	52	33	30.3	42.6	27.1
Divorced	67	34	21	12	50.7	31.4	17.9
Interior counties	1,093	661	371	61	60.5	33.9	5.6
Single	916	594	279	43	64.8	30.5	4.7
Widowed	115	44	58	13	38.3	50.4	11.3
Divorced	62	23	34	5	37.1	54.8	8.1
Central California	13,253	6,485	3,683	3,085	48.9	27.8	23.3
Single	11,053	5,681	2,809	2,563	51.4	25.4	23.2
Widowed	1,246	397	463	386	31.9	37.1	31.0
Divorced	954	407	411	136	42.7	43.1	14.2
San Francisco	4,095	1,872	895	1,328	45.7	21.9	32.4
Single	3,540	1,677	711	1,152	47.4	20.1	32.5
Widowed	334	105	96	133	31.4	28.8	39.8
Divorced	221	90	88	43	40.7	39.8	19.5
Other bay counties	4,101	2,020	1,168	913	49.2	28.5	22.3
Single	3,340	1,739	865	736	52.1	25.9	22.0
Widowed	396	123	155	118	31.1	39.1	29.8
Divorced	365	158	148	59	43.3	40.5	16.2
Coast counties	1,680	885	503	292	52.7	29.9	17.4
Single	1,394	779	385	230	55.9	27.6	16.5
Widowed	178	57	72	49	32.0	40.5	27.5
Divorced	108	49	46	13	45.4	42.6	12.0
Interior counties	3,377	1,708	1,117	552	50.6	33.1	16.3
Single	2,779	1,486	848	445	53.5	30.5	16.0
Widowed	338	112	140	86	33.1	41.4	25.5
Divorced	260	110	129	21	42.3	49.6	8.1
Southern California	7,083	1,413	4,518	1,152	19.9	63.8	16.3
Single	5,750	1,237	3,598	915	21.5	62.6	15.9
Widowed	757	83	499	175	11.0	65.9	23.1
Divorced	576	93	421	62	16.1	73.1	10.8
Los Angeles	4,696	818	3,057	821	17.4	65.1	17.5
Single	3,868	728	2,481	659	18.8	64.2	17.0
Widowed	464	43	306	115	9.3	65.9	24.8
Divorced	364	47	270	47	12.9	74.2	12.9
Other counties	2,387	595	1,461	331	24.9	61.2	13.9
Single	1,882	509	1,117	256	27.0	59.4	13.6
Widowed	293	40	193	60	13.6	65.9	20.5
Divorced	212	46	151	15	21.7	71.2	7.1

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* Includes those of unknown nativity, numbering only 161, or 0.7 per cent of all in the entire State.

TABLE 17.—*White Brides classified by Marital Condition and Nativity, with Per Cent Distribution by Nativity, for Geographic Divisions: 1907—Continued.*

GEOGRAPHIC DIVISION.	White Brides.				Per Cent.		
	Total.	Born in California.	Born in Other States.*	Foreign Born.	Born in California.	Born in Other States.	Foreign Born.
Northern and Central California	15,509	7,832	4,324	3,353	50.5	27.9	21.6
Single	12,943	6,890	3,285	2,768	53.2	25.4	21.4
Widowed	1,483	478	573	432	32.2	38.7	29.1
Divorced	1,083	464	466	153	42.9	43.0	14.1
Coast counties	11,039	5,463	2,836	2,740	49.5	25.7	24.8
Single	9,248	4,810	2,158	2,280	52.0	23.3	24.7
Widowed	1,030	322	375	333	31.3	36.4	32.3
Divorced	761	331	303	127	43.5	39.8	16.7
Interior counties	4,470	2,369	1,488	613	53.0	33.3	13.7
Single	3,695	2,080	1,127	488	56.3	30.5	13.2
Widowed	453	156	198	99	34.4	43.7	21.9
Divorced	322	133	163	26	41.3	50.6	8.1
Metropolitan area	8,196	3,892	2,063	2,241	47.5	25.2	27.3
Single	6,880	3,416	1,576	1,888	49.7	22.9	27.4
Widowed	730	228	251	251	31.2	34.4	34.4
Divorced	586	248	236	102	42.3	40.3	17.4
Rural counties	7,313	3,940	2,261	1,112	53.9	30.9	15.2
Single	6,063	3,474	1,709	880	57.3	28.2	14.5
Widowed	753	250	322	181	33.2	42.8	24.0
Divorced	497	216	230	51	43.4	46.3	10.3

* Includes those of unknown nativity, numbering only 161, or 0.7 per cent of all in the entire State.

TABLE 18.—*White Brides classified by Marital Condition and Nativity, with Per Cent Distribution by Nativity, for Geographic Divisions: 1906.*

GEOGRAPHIC DIVISION.	White Brides.				Per Cent.		
	Total.	Born in California.	Born in Other States.*	Foreign Born.	Born in California.	Born in Other States.	Foreign Born.
THE STATE	20,955	8,710	8,315	3,930	41.6	39.7	18.7
Single	17,209	7,628	6,410	3,171	44.3	37.3	18.4
Widowed	2,104	505	1,039	560	24.0	49.4	26.6
Divorced	1,642	577	866	199	35.1	52.8	12.1
Northern California	2,043	1,266	548	229	62.0	26.8	11.2
Single	1,707	1,138	384	185	66.7	22.5	10.8
Widowed	199	62	102	35	31.1	51.3	17.6
Divorced	137	66	62	9	48.2	45.2	6.6
Coast counties	1,041	614	259	168	59.0	24.9	16.1
Single	872	555	179	138	63.7	20.5	15.8
Widowed	94	28	45	21	29.8	47.9	22.3
Divorced	75	31	35	9	41.3	46.7	12.0
Interior counties	1,002	652	289	61	65.0	28.9	6.1
Single	835	583	205	47	69.8	24.6	5.6
Widowed	105	34	57	14	32.4	54.3	13.3
Divorced	62	35	27	--------	56.5	43.5	--------
Central California	12,381	6,137	3,584	2,660	49.6	28.9	21.5
Single	10,179	5,350	2,678	2,151	52.6	26.3	21.1
Widowed	1,198	354	471	373	29.6	39.3	31.1
Divorced	1,004	433	435	136	43.1	43.3	13.6
San Francisco	3,489	1,642	809	1,038	47.1	23.2	29.7
Single	2,951	1,459	610	882	49.4	20.7	29.9
Widowed	290	80	97	113	27.6	33.4	39.0
Divorced	248	103	102	43	41.5	41.1	17.4
Other bay counties	4,138	2,060	1,171	907	49.8	28.3	21 9
Single	3,312	1,758	859	695	53.1	25.9	21.0
Widowed	445	138	158	149	31.0	35.5	33.5
Divorced	381	164	154	63	43.1	40.4	16.5
Coast counties	1,632	861	506	265	52.8	31.0	16.2
Single	1,345	751	381	213	55.9	28.3	15 8
Widowed	158	48	70	40	30.4	44.3	25.3
Divorced	129	62	55	12	48.1	42.6	9.3
Interior counties	3,122	1,574	1,098	450	50.4	35.2	14.4
Single	2,571	1,382	828	361	53.8	32.2	14.0
Widowed	305	88	146	71	28.9	47.9	23.2
Divorced	246	104	124	18	42.3	50.4	7.3
Southern California	6,531	1,307	4,183	1,041	20.0	64.1	15.9
Single	5,328	1,140	3,348	835	21.4	62.9	15.7
Widowed	707	89	466	152	12.6	65.9	21.5
Divorced	501	78	369	54	15.6	73.6	10.8
Los Angeles	4,406	774	2,905	727	17.6	65.9	16.5
Single	3,652	677	2,374	601	18.5	65.0	16.5
Widowed	452	51	310	91	11.3	68.6	20.1
Divorced	302	46	221	35	15.2	73.2	11.6
Other counties	2,125	533	1,278	314	25.1	60.1	14.8
Single	1,671	463	974	234	27.7	58.3	14.0
Widowed	255	38	156	61	14.9	61.2	23.9
Divorced	199	32	148	19	16.1	74.4	9.5

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*Includes those of unknown nativity, numbering only 222, or 1.1 per cent of all in the entire State.

TABLE 18.—*White Brides classified by Marital Condition and Nativity, with Per Cent Distribution by Nativity, for Geographic Divisions: 1906—Continued.*

GEOGRAPHIC DIVISION.	White Brides.				Per Cent.		
	Total.	Born in California.	Born in Other States.*	Foreign Born.	Born in California.	Born in Other States.	Foreign Born.
Northern and Central California	14,424	7,403	4,132	2,889	51.3	28.6	20.1
Single	11,886	6,488	3,062	2,336	54.6	25.8	19.6
Widowed	1,397	416	573	408	29.8	41.0	29.2
Divorced	1,141	499	497	145	43.7	43.6	12.7
Coast counties	10,300	5,177	2,745	2,378	50.3	26.6	23.1
Single	8,480	4,523	2,029	1,928	53.4	23.9	22.7
Widowed	987	294	370	323	29.8	37.5	32.7
Divorced	833	360	346	127	43.2	41.5	15.3
Interior counties	4,124	2,226	1,387	511	54.0	33.6	12.4
Single	3,406	1,965	1,033	408	57.7	30.3	12.0
Widowed	410	122	203	85	29.8	49.5	20.7
Divorced	308	139	151	18	45.1	49.0	5.9
Metropolitan area	7,627	3,702	1,980	1,945	48.5	26.0	25.5
Single	6,263	3,217	1,469	1,577	51.4	23.4	25.2
Widowed	735	218	255	262	29.7	34.7	35.6
Divorced	629	267	256	106	42.4	40.7	16.9
Rural counties	6,797	3,701	2,152	944	54.4	31.7	13.9
Single	5,623	3,271	1,593	759	58.2	28.3	13.5
Widowed	662	198	318	146	29.9	48.0	22.1
Divorced	512	232	241	39	45.3	47.1	7.6

* Includes those of unknown nativity, numbering only 222, or 1.1 per cent of all in the entire State.

TABLE 19.—*Brides classified by Race, Nativity, and Marital*

COUNTY.	Single Brides.						
	Total.	White.					Non-Caucasian.
		Total.	Born in California.	Born in Other States.	Foreign Born.	Unknown.	
THE STATE	18,995	18,693	8,127	6,742	3,683	141	302
Northern California	1,911	1,890	1,209	457	205	19	21
Coast counties	979	974	615	190	162	7	5
Del Norte	5	5	3	2	--------	--------	--------
Humboldt	267	265	162	42	57	4	2
Lake	29	29	23	4	2	--------	--------
Mendocino	161	159	111	20	28	--------	2
Napa	173	172	93	43	33	3	1
Sonoma	336	336	218	76	42	--------	--------
Trinity	8	8	5	3	--------	--------	--------
Interior counties	932	916	594	267	43	12	16
Butte	180	176	104	61	9	2	4
Colusa	31	31	27	2	1	1	--------
Glenn	36	36	27	5	2	2	--------
Lassen	25	24	17	6	1	--------	1
Modoc	33	33	22	10	1	--------	--------
Nevada	103	103	73	23	7	--------	--------
Placer	77	77	50	23	3	1	--------
Plumas	17	16	12	3	1	--------	1
Shasta	112	112	62	43	6	1	--------
Sierra	8	8	5	3	--------	--------	--------
Siskiyou	97	95	52	30	9	4	2
Sutter	25	24	21	3	--------	--------	1
Tehama	105	104	71	30	3	--------	1
Yuba	83	77	51	25	--------	1	6
Central California	11,209	11,053	5,681	2,722	2,563	87	156
San Francisco	3,597	3,540	1,677	666	1,152	45	57
Other bay counties	3,390	3,340	1,739	851	736	14	50
Alameda	2,505	2,460	1,210	674	566	10	45
Contra Costa	173	173	91	30	52	--------	--------
Marin	518	515	312	113	89	1	3
San Mateo	194	192	126	34	29	3	2
Coast counties	1,407	1,394	779	365	230	20	13
Monterey	170	168	109	34	21	4	2
San Benito	41	41	30	9	2	--------	--------
San Luis Obispo	168	168	99	48	18	3	--------
Santa Clara	782	771	414	207	144	6	11
Santa Cruz	246	246	127	67	45	7	--------
Interior counties	2,815	2,779	1,486	840	445	8	36
Alpine	--------	--------	--------	--------	--------	--------	--------
Amador	53	53	34	3	16	--------	--------
Calavaras	44	44	28	4	12	--------	--------
El Dorado	37	35	24	6	5	--------	2
Fresno	537	529	184	221	122	2	8
Inyo	34	34	17	14	3	--------	--------
Kern	172	170	67	71	32	--------	2
Kings	122	119	61	46	11	1	3
Madera	43	42	20	15	7	--------	1
Mariposa	11	11	10	1	--------	--------	--------
Merced	71	70	30	30	9	1	1
Mono	4	4	2	2	--------	--------	--------
Sacramento	745	737	439	187	110	1	8
San Joaquin	384	377	226	85	66	--------	7
Solano	130	130	91	26	12	1	--------
Stanislaus	84	83	42	27	14	--------	1
Tulare	208	207	111	80	15	1	1
Tuolumne	53	53	38	8	6	1	--------
Yolo	83	81	62	14	5	--------	2

Condition, for Counties arranged Geographically: 1907.

Widowed Brides.							Divorced Brides.						
Total.	White.					Non-Caucasian......	Total.	White.					Non-Caucasian......
	Total.	Born in California.	Born in Other States.	Foreign Born.	Unknown			Total.	Born in California.	Born in Other States.	Foreign Born.	Unknown	
2,312	2,240	561	1,057	607	15	72	1,698	1,659	557	882	215	5	39
238	237	81	106	46	4	1	129	129	57	55	17	----	----
122	122	37	48	33	4	----	67	67	34	21	12	----	----
2	2	1	1	----	----	----	1	1	----	----	1	----	----
30	30	7	14	7	2	----	23	23	13	6	4	----	----
3	3	1	1	1	----	----	2	2	1	1	----	----	----
21	21	6	9	6	----	----	9	9	5	2	2	----	----
20	20	6	3	10	1	----	13	18	6	5	2	----	----
44	44	14	20	9	1	----	18	18	9	6	3	----	----
2	2	2	----	----	----	----	1	1	----	1	----	----	----
116	115	44	58	13	----	1	62	62	23	34	5	----	----
26	26	6	18	2	----	----	16	16	5	8	3	----	----
1	1	----	1	----	----	----	2	2	1	1	----	----	----
3	3	2	1	----	----	----	1	1	----	1	----	----	----
2	2	----	1	1	----	----	----	----	----	----	----	----	----
3	3	1	2	----	----	----	2	2	1	1	----	----	----
9	9	6	1	2	----	----	5	5	2	2	1	----	----
10	10	4	4	2	----	----	3	3	----	3	----	----	----
2	2	1	----	1	----	----	2	2	1	1	----	----	----
22	22	12	8	2	----	----	10	10	4	5	1	----	----
15	15	4	8	3	----	----	8	8	4	4	----	----	----
1	1	1	----	----	----	----	3	3	----	3	----	----	----
12	12	3	9	----	----	----	7	7	2	5	----	----	----
10	9	4	5	----	----	1	3	3	3	----	----	----	----
1,273	1,246	397	461	386	2	27	968	954	407	409	136	2	14
337	334	105	95	133	1	3	224	221	90	88	43	----	3
409	396	123	154	118	1	13	370	365	158	148	59	----	5
280	267	79	104	84	----	13	224	221	86	99	36	----	3
16	16	6	3	7	----	----	11	11	4	5	2	----	----
87	87	30	38	18	1	----	98	98	54	26	18	----	----
26	26	8	9	9	----	----	37	35	14	18	3	----	2
181	178	57	72	49	----	3	109	108	49	46	13	----	1
18	17	5	7	5	----	1	8	7	3	3	1	----	1
2	2	----	2	----	----	----	4	4	2	1	1	----	----
17	17	6	7	4	----	----	11	11	5	5	1	----	----
112	110	37	38	35	----	2	67	67	30	28	9	----	----
32	32	9	18	5	----	----	19	19	9	9	1	----	----
346	338	112	140	86	----	8	265	260	110	127	21	2	5
5	5	----	----	5	----	----	8	7	4	2	----	1	1
4	4	2	1	1	----	----	4	4	4	----	----	----	----
6	6	3	1	2	----	----	2	2	1	1	----	----	----
61	60	16	29	15	----	1	32	31	9	16	5	1	1
4	4	----	2	2	----	----	2	2	1	1	----	----	----
17	14	5	5	4	----	3	17	16	7	9	----	----	1
12	12	3	8	1	----	----	10	10	3	7	----	----	----
9	8	4	3	1	----	1	7	6	3	3	----	----	1
3	3	3	----	----	----	----	1	1	----	1	----	----	----
6	6	3	2	1	----	----	4	4	2	2	----	----	----
1	1	1	----	----	----	----	----	----	----	----	----	----	----
101	98	35	39	24	----	3	104	103	41	52	10	----	1
50	50	19	17	14	----	----	36	36	19	11	6	----	----
17	17	5	7	5	----	----	7	7	1	6	----	----	----
14	14	4	7	3	----	----	6	6	3	3	----	----	----
24	24	4	15	5	----	----	18	18	6	12	----	----	----
7	7	1	4	2	----	----	2	2	2	----	----	----	----
5	5	4	----	1	----	----	5	5	4	1	----	----	----

TABLE 19.—*Brides classified by Race, Nativity, and Marital*

COUNTY.	Single Brides.						
	Total.	White.					Non-Caucasian.
		Total.	Born in California.	Born in Other States.	Foreign Born.	Unknown.	
Southern California	5,875	5,750	1,237	3,563	915	35	125
Los Angeles	3,959	3,868	728	2,458	659	23	91
Other counties	1,916	1,882	509	1,105	256	12	34
Orange	484	480	127	308	43	2	4
Riverside	242	231	55	151	25		11
San Bernardino	371	363	69	232	54	8	8
San Diego*	483	475	119	279	77		8
Santa Barbara	219	216	99	78	39		3
Ventura	117	117	40	57	18	2	
Northern and Central California	13.120	12,943	6,890	3,179	2,768	106	177
Coast counties	9,373	9,248	4,810	2,072	2,280	86	125
Interior counties	3,747	3,695	2,080	1,107	488	20	52
Metropolitan area	6,987	6,880	3,416	1,517	1,888	59	107
Rural counties	6,133	6,063	3,474	1,662	880	47	70

*Includes 5 marriages in Imperial County, formed August 15, 1907.

Condition, for Counties arranged Geographically: 1907—Continued.

Widowed Brides.							Divorced Brides.						
Total.	White.					Non-Caucasian........	Total.	White.					Non-Caucasian........
	Total.	Born in California.	Born in Other States.	Foreign Born.	Unknown			Total.	Born in California.	Born in Other States.	Foreign Born.	Unknown	
801	757	83	490	175	9	44	601	576	93	418	62	3	25
503	464	43	299	115	7	39	385	364	47	268	47	2	21
298	293	40	191	60	2	5	216	212	46	150	15	1	4
89	88	11	63	14	----	1	65	65	10	52	3	----	----
31	30	2	20	8	----	1	26	25	2	21	2	----	1
52	52	8	35	8	1	-----	35	35	10	23	2	----	----
90	87	8	55	24	----	3	55	53	6	43	4	----	2
31	31	9	17	4	1	-----	24	23	10	9	4	----	1
5	5	2	1	2	----	-----	11	11	8	2	------	1	----
1,511	1,483	478	567	432	6	28	1,097	1,083	464	464	153	2	14
1,049	1,030	322	369	333	6	19	770	761	331	303	127	----	9
462	453	156	198	99	----	9	327	322	133	161	26	2	5
746	730	228	249	251	2	16	594	586	248	236	102	----	8
765	753	250	318	181	4	12	503	497	216	228	51	2	6

TABLE 20.—*Brides classified by Race, Nativity, and Marital*

COUNTY.	Single Brides.						
	Total.	White.					Non-Caucasian.
		Total.	Born in California.	Born in Other States.	Foreign Born.	Unknown.	
THE STATE	17,464	17,209	7,628	6,225	3,171	185	255
Northern California	1,733	1,707	1,138	368	185	16	26
Coast counties	876	872	555	172	138	7	4
Del Norte	10	9	5	4			1
Humboldt	223	221	135	31	54	1	2
Lake	29	29	24	4	1		
Mendocino	150	150	104	20	22	4	
Napa	133	133	79	38	15	1	
Sonoma	315	314	193	74	46	1	1
Trinity	16	16	15	1			
Interior counties	857	835	583	196	47	9	22
Butte	144	137	99	36	2		7
Colusa	33	31	27	3		1	2
Glenn	29	29	22	6	1		
Lassen	30	30	25	5			
Modoc	29	28	21	5	2		1
Nevada	87	87	67	7	13		
Placer	71	69	40	18	6	5	2
Plumas	20	20	15	5			
Shasta	123	120	84	28	7	1	3
Sierra	14	14	13		1		
Siskiyou	106	103	53	42	8		3
Sutter	28	28	24	3	1		
Tehama	71	70	43	26	1		1
Yuba	72	69	50	12	5	2	3
Central California	10,323	10,179	5,350	2,576	2,151	102	144
San Francisco	2,997	2,951	1,459	572	882	38	46
Other bay counties	3,362	3,312	1,758	830	695	29	50
Alameda	2,478	2,434	1,234	629	546	25	44
Contra Costa	161	160	92	23	44	1	1
Marin	530	527	325	127	72	3	3
San Mateo	193	191	107	51	33		2
Coast counties	1,352	1,345	751	368	213	13	7
Monterey	142	140	91	30	19		2
San Benito	52	51	35	8	7	1	1
San Luis Obispo	163	161	104	28	26	3	2
Santa Clara	783	781	401	248	124	8	2
Santa Cruz	212	212	120	54	37	1	
Interior counties	2,612	2,571	1,382	806	361	22	41
Alpine	1	1	1				
Amador	63	62	45	7	10		1
Calaveras	35	35	21	1	13		
El Dorado	45	43	36	6	1		2
Fresno	462	454	142	213	97	2	8
Inyo	12	12	8	2	2		
Kern	119	114	52	47	11	4	5
Kings	108	105	55	37	13		3
Madera	40	40	20	13	4	3	
Mariposa	17	17	11	4	2		
Merced	70	69	37	14	17	1	1
Mono	3	3	2	1			
Sacramento	672	661	395	183	79	4	11
San Joaquin	404	403	239	108	55	1	1
Solano	146	141	87	25	25	4	5
Stanislaus	86	85	43	27	14	1	1
Tulare	190	188	89	87	11	1	2
Tuolumne	49	49	34	10	4	1	
Yolo	90	89	65	21	3		1

Condition, for Counties arranged Geographically: 1906.

Widowed Brides.							Divorced Brides.						
	White.							White.					
Total.	Total.	Born in California.	Born in Other States.	Foreign Born.	Unknown.	Non-Caucasian	Total.	Total.	Born in California.	Born in Other States.	Foreign Born.	Unknown.	Non-Caucasian
2,174	2,104	505	1,018	560	21	70	1,679	1,642	577	850	199	16	37
206	199	62	99	35	3	7	138	137	66	62	9		1
96	94	28	42	21	3	2	75	75	31	35	9		
1	1				1		1	1		1			
25	25	8	9	7	1		18	18	9	7	2		
1	1		1				3	3	1	1	1		
13	12	2	5	4	1	1	13	13	5	8			
14	14	3	9	2			15	15	6	8	1		
40	39	14	17	8		1	25	25	10	10	5		
2	2	1	1										
110	105	34	57	14		5	63	62	35	27			1
17	17	5	10	2			8	8	4	4			
4	4		4				1	1	1				
5	5	2	3				2	2	1	1			
3	3		2	1									
3	3	1	2				1	1		1			
10	10	4	3	3			7	7	6	1			
10	9	3	4	2		1	7	7	3	4			
1						1							
21	19	7	10	2		2	17	16	8	8			1
1	1			1			1	1	1				
13	13	4	9				8	8	5	3			
2	2	1	1				3	3	3				
13	12	4	6	2		1	5	5	2	3			
7	7	3	3	1			3	3	1	2			
1,228	1,198	354	461	373	10	30	1,022	1,004	433	424	136	11	18
293	290	80	92	113	5	3	249	248	103	99	43	3	1
462	445	138	156	149	2	17	393	381	164	152	63	2	12
301	287	78	99	109	1	14	240	233	97	98	36	2	7
22	21	7	9	5		1	13	12	6	5	1		1
111	109	44	38	27		2	109	105	46	40	19		4
28	28	9	10	8	1		31	31	15	9	7		
161	158	48	69	40	1	3	129	129	62	52	12	3	
19	18	7	9	2		1	13	13	4	6	2	1	
4	4	4					2	2	1	1			
16	15	6	7	1	1	1	6	6	3	3			
86	85	22	34	29		1	87	87	43	36	6	2	
36	36	9	19	8			21	21	11	6	4		
312	305	88	144	71	2	7	251	246	104	121	18	3	5
10	10	4	2	4			1	1			1		
3	3		2	1			3	3	3				
1	1	1					2	2	1	1			
55	55	9	34	11	1		32	32	11	19	2		
1	1	1											
20	18	6	10	2		2	13	13	2	11			
6	6	1	4	1			6	5	2	3			1
5	5	1	3	1			4	4	2	2			
6	6	3		3			4	4	2	1	1		
							1	1		1			
84	82	26	37	19		2	78	75	39	30	4	2	3
61	60	22	22	15	1	1	55	55	23	25	6	1	
19	17	4	7	6		2	21	20	9	9	2		1
7	7	1	4	2			7	7	3	4			
18	18	5	9	4			14	14	4	10			
9	9	2	6	1			2	2	1	1			
7	7	2	4	1			8	8	2	4	2		

TABLE 20.—*Brides classified by Race, Nativity, and Marital*

COUNTY.	Single Brides.						
	Total.	White.					Non-Caucasian.
		Total.	Born in California.	Born in Other States.	Foreign Born.	Unknown.	
Southern California	5,408	5,323	1,140	3,281	835	67	85
Los Angeles	3,712	3,652	677	2,324	601	50	60
Other counties	1,696	1,671	463	957	234	17	25
Orange	396	395	90	259	45	1	1
Riverside	238	228	46	152	24	6	10
San Bernardino	325	323	77	198	41	7	2
San Diego	450	442	106	255	79	2	8
Santa Barbara	187	183	88	61	33	1	4
Ventura	100	100	56	32	12	--------	--------
Northern and Central California	12,056	11,886	6,488	2,944	2,336	118	170
Coast counties	8,587	8,480	4,523	1,942	1,928	87	107
Interior counties	3,469	3,406	1,965	1,002	408	31	63
Metropolitan area	6,359	6,263	3,217	1,402	1,577	67	96
Rural counties	5,697	5,623	3,271	1,542	759	51	74

Condition, for Counties arranged Geographically: 1906—Continued.

Widowed Brides.							Divorced Brides.						
	White.							White.					
Total.	Total.	Born in California.	Born in Other States.	Foreign Born.	Unknown.	Non-Caucasian........	Total.	Total.	Born in California.	Born in Other States.	Foreign Born.	Unknown.	Non-Caucasian........
740	707	89	458	152	8	33	519	501	78	364	54	5	18
480	452	51	306	91	4	28	314	302	46	216	35	5	12
260	255	38	152	61	4	5	205	199	32	148	19	----	6
62	61	6	44	11	----	1	66	65	10	46	9	----	1
25	24	4	15	5	----	1	24	23	6	16	1	----	1
47	45	6	31	7	1	2	32	31	4	23	4	----	1
79	78	8	45	24	1	----	53	50	5	41	4	----	3
28	27	6	12	9	----	1	21	21	5	15	1	----	----
20	20	8	5	5	2	----	9	9	2	7	----	----	----
1,434	1,397	416	560	408	13	37	1,160	1,141	499	486	145	11	19
1,012	987	294	359	323	11	25	846	833	360	338	127	8	13
422	410	122	201	85	2	12	314	308	139	148	18	3	6
755	735	218	248	262	7	20	642	629	267	251	106	5	13
679	662	198	312	146	6	17	518	512	232	235	39	6	6

STATISTICS OF DEATHS: 1907 AND 1906.

SUMMARY.

Increase.—The deaths in California, exclusive of stillbirths, numbered 31,095 for 1907, against 29,303 in 1906, an increase of 1,792, or 6.1 per cent.

There were decreases for 1907 as compared with 1906 in San Francisco and in the coast counties of Central California, on account of the excessive mortality from earthquake and fire in April, 1906.

The per cent of increase in deaths was 11.8 for Northern California, and only 2.1 for Central California, or 3.7 for both together, against 12.4 for Southern California.

Death-rates.—For an estimated State population of 2,001,193 in 1907 and of 1,882,846 in 1906, the death-rates were respectively 15.5 and 15.6 per 1,000 inhabitants.

The death-rates in 1907 and 1906 were 18.5 and 18.6 for the counties south of Tehachapi and 14.6 and 14.7 for those to the north, being 14.6 and 15.1 for Central California and 14.4 and 13.0 for Northern California.

Causes of Death.—Tuberculosis causes over one seventh of all deaths in California, the per cent being 14.8 for 1907 and 15.1 for 1906. The tuberculosis death-rate per 100,000 population was 230.2 in 1907 and 235.7 in 1906.

For diseases of the circulatory system (heart disease, etc.), the per cents in 1907 and 1906 were 14.0 and 12.9 and the death-rates per 100,000 were 218.0 and 200.0, respectively.

The per cents of total deaths from pneumonia and other diseases of the respiratory system were 11.5 and 10.9, while the death-rates per 100,000 for this class of diseases were 179.4 and 169.2.

Diseases of the nervous system caused 9.8 per cent of all deaths in 1907 and 9.4 per cent in 1906, the death-rates per 100,000 being 152.9 and 146.7.

Other prominent causes of death in 1907 and 1906 were: diseases of the digestive system, miscellaneous violence, cancer, and Bright's disease.

Typhoid fever was the most fatal epidemic disease each year, causing 1.8 per cent of all deaths in 1907 and 2.2 per cent in 1906. Next were diphtheria and croup (1.2 per cent in 1907 and 0.8 per cent in 1906), measles, whooping-cough, influenza, plague (in 1907 alone), scarlet fever, malarial fever, and smallpox (causing only 6 deaths in 1907, but 36 in 1906).

Altogether 750 deaths, or 2.6 per cent of all in 1906, are known to have resulted directly or indirectly from earthquake and fire in April, distributed by counties as follows: San Francisco, 503; Santa Clara (mainly at Agnews State Hospital), 141; Sonoma (mainly in Santa Rosa city), 72; Alameda, 12; and scattering, 22.

Geographic Divisions.—Analysis of causes of death in different localities reveals marked contrasts between the several geographic divisions in the relative prevalence of various diseases.

In the coast counties of both Northern and Central California, as well as in Southern California outside Los Angeles, relatively high proportions of all deaths are due to diseases of the nervous system, the explanation being the presence of State hospitals in these three geographic divisions.

The interior counties of Northern California show high proportions for miscellaneous deaths from violence, as drowning, railroad injuries, other accidents, etc.

In the interior counties of both Northern and Central California the proportions are high for typhoid fever and for diphtheria and croup. Typhoid fever was also quite prevalent in San Francisco in 1906, and in the other bay counties in 1907.

Each year large proportions of all deaths in San Francisco and the other bay counties were from diseases of the circulatory system (heart disease, etc.) and also from pneumonia. The metropolitan area leads in deaths from diarrhea among children under 2 years of age, and San Francisco leads especially in the proportion of suicides among all decedents.

The proportion of deaths from tuberculosis was very high indeed each year in Los Angeles, as well as in the other counties of Southern California, on account of the many deaths occurring among newcomers from the East.

Contrast between mortality in the metropolitan area and in the rural counties north of Tehachapi shows that the urban territory excels in deaths from heart disease, Bright's disease, pneumonia, cancer, infancy and infantile diarrhea, suicide, typhoid fever, and diphtheria and croup, while the country districts excel in deaths from tuberculosis, other general diseases, diseases of the nervous system, miscellaneous violence, "old age," and malarial fever.

Tuberculosis.—The "great white plague" caused altogether 4,607 deaths, or 14.8 per cent of all, in 1907 and 4,437, or 15.1 per cent, in 1906.

The per cent of total deaths from tuberculosis was no less than 20.1 in 1907 and 21.6 in 1906 for Southern California, against only 12.6 and 12.7, respectively, for the counties north of Tehachapi.

However, deaths from tuberculosis in Southern California occur largely among newly arrived consumptives. Thus, the per cents of tuberculosis victims who had lived in the State less than ten years were as great as 56.4 and 58.9 in 1907 and 1906 for the counties south of Tehachapi, as compared with only 16.4 and 16.6 for those to the north and 32.3 and 33.2 for the entire State. Moreover, the length of residence in California was less than a year for 18.4 per cent of the victims in Southern California in 1907 and for 25.4 per cent in 1906, the corresponding figures for the State as a whole being 9.9 and 12.5. In fact of all who died of tuberculosis in Southern California in 1907 and 1906, those who had been in the State less than a month were respectively 2.4 and 3.4 per cent, those less than three months 7.7 and 9.1 per cent, and those less than half a year altogether 12.7 and 16.0 per cent.

In Northern and Central California, on the other hand, the deaths from tuberculosis include many native Californians and old-time residents. The per cents of native Californians among tuberculous victims in 1907 and 1906 were 37.7 and 38.0 for the counties north of Tehachapi, against only 14.8 and 14.9 for those to the south, being 28.6 and 28.9 for the entire State. Similarly, the per cents who had lived here at least 10 years were 30.5 and 31.1 for Northern and Central California in 1907 and 1906, as compared with 18.4 and 19.7 for Southern California, being 25.7 and 26.6 for the State as a whole.

In short, the death-rate of California is evidently swollen considerably by deaths occurring here from disease contracted elsewhere. For where tuberculosis is most prevalent a large proportion of the victims are residents of very short standing. Moreover, infection from these newly arrived consumptives accounts for some of the deaths among native Californians and old-time residents.

Sex.—Of 31,095 decedents in 1907, the males were 19,666, or 63.2 per cent, and the females 11,429, or 36.8 per cent, while among the 29,303 in 1906, 18,166, or 62.0 per cent, were male and 11,137, or 38.0 per cent, female. Each year the per cent male was highest for Northern California and next for Central California.

The per cents male were above the general averages for deaths from miscellaneous violence, suicide, earthquake and fire (1906), plague (1907), typhoid fever, pneumonia, heart disease, etc., Bright's disease, and pulmonary tuberculosis. The female decedents outnumbered the males only for cancer, whooping-cough, and scarlet fever.

Race.—In 1907 the white decedents numbered 29,339, or 94.3 per cent of all; the Chinese, 670; the Japanese, 517; the negroes, 449; and the Indians, 120. The figures for 1906 were: white, 27,704, or 94.5 per cent; Chinese, 670; negro, 428; Japanese, 384; and Indian, 117. The per cent white was highest each year for Southern California.

The per cents white were very high for deaths from scarlet fever, measles, diphtheria and croup, whooping-cough, cancer, diseases of the nervous and circulatory systems, diarrhea and enteritis (under 2 years), Bright's disease, diseases of early infancy, and suicide.

The proportion of Caucasians among all decedents was low each year for typhoid fever, which causes many deaths of Japanese, and for tuberculosis, which kills many Chinese and negroes.

Nativity.—Of the white decedents in 1907, 10,482, or 35.7 per cent, were born in other states; 9,396, or 32.0 per cent, in foreign countries; 8,332, or 28.4 per cent, in California; and 1,129, or 3.9 per cent, were of unknown nativity. In 1906 those born in other states were 9,679, or 34.9 per cent; the foreign born were 8,840, or 31.9 per cent; those born in California were 7,866, or 28.4 per cent; and the unknown were 1,319, or 4.8 per cent.

The proportion born elsewhere in the United States is very high for Southern California, especially Los Angeles. The proportion foreign born is notably great only for Central California, especially for San Francisco and the other bay counties. The proportion of native Californians among decedents was greatest each year in Central California, and next in Northern California.

The proportion of native Californians is especially great for deaths from early infancy, infantile diarrhea, whooping-cough, measles, scarlet fever, diphtheria and croup, meningitis, tuberculosis other than pulmonary, childbirth, typhoid fever, pneumonia, and plague (in 1907).

The per cents born in other states were above the general averages each year for deaths from diseases of the nervous system other than meningitis, Bright's disease, diseases of the circulatory system, cancer, tuberculosis of the lungs, and diseases of the digestive system other than diarrhea.

The proportions foreign born were above the general averages for deaths from plague (in 1907), cancer, heart disease, etc., pneumonia and other diseases of the respiratory system, Bright's disease, and diseases of the nervous and digestive systems other than meningitis and diarrhea, respectively.

Age Periods.—In 1907 there were 16,761 deaths at the productive ages, 15 to 64 years; 8,175 at the period of old age, 65 years and over; 3,422 in infancy, or the first year of life; 1,484 in childhood, 1 to 4 years; 1,060 in youth, 5 to 14 years; and 193 of unknown age. For 1906 the figures were: 15 to 64 years, 15,324; 65 years and over, 7,833; under 1 year, 3,347; 1 to 4 years, 1,320; 5 to 14 years, 988; and unknown (including 302 deaths from earthquake and fire), 491. The per cent distribution of deaths for 1907 and 1906, respectively, was: productive ages, 53.9 and 52.3; period of old age, 26.3 and 26.7; infancy, 11.0 and 11.4; childhood, 4.8 and 4.5; youth, 3.4 each year; and age unknown, 0.6 and 1.7.

The per cent of deaths occurring at the productive ages was especially high each year for Los Angeles and the rest of Southern California, as well as for San Francisco. The proportion of deaths at the period of old age is particularly large only for the rural counties north of Tehachapi. On the other hand, the proportion of deaths in both infancy and childhood is notably great for the metropolitan area, comprising San Francisco and the other bay counties.

At the years from 15 to 64, large proportions of deaths occur from childbirth, tuberculosis of the lungs, suicide, typhoid fever, miscellaneous violence, plague (in 1907), diseases of the digestive system other than diarrhea, cancer, and Bright's disease.

At 65 years and over, the per cents were high in 1907 and 1906 for deaths from influenza, miscellaneous causes (including "old age" or senility), diseases of the circulatory system (heart disease, etc.), diseases of the nervous system other than meningitis, diseases of the respiratory system other than pneumonia, Bright's disease, and diarrhea of elderly people.

Under 1 year occur large proportions of deaths from early infancy and infantile diarrhea, whooping-cough, measles, meningitis, pneumonia and other diseases of the respiratory system, and tuberculosis other than pulmonary.

At 1 to 4 years the diseases especially fatal are diphtheria and croup, measles, scarlet fever, whooping-cough, diarrhea and enteritis, meningitis, tuberculosis of other organs than the lungs, pneumonia, and plague (in 1907).

At 5 to 14 years the diseases causing exceptionally large proportions of deaths are scarlet fever, diphtheria and croup, meningitis, measles, tuberculosis other than pulmonary, plague (in 1907), typhoid fever, whooping-cough, diarrhea and other diseases of the digestive system, and miscellaneous violence (accidental injuries, etc.).

INCREASE OF DEATHS: 1906 TO 1907.

Sources of Information.—The death registration law of 1905 was enforced throughout California quite faithfully in 1906 and 1907. This law forbids the interment or other disposition of a body except by authority of the permit obtained by filing a satisfactory death certificate with the Local Registrar (or Subregistrar) of the district where the death occurred. The Local Registrars are the Health Officers of cities having freeholders' charters, the Clerks in other cities and incorporated towns, and the County Recorders for the unincorporated portions of counties, the Recorders appointing Subregistrars to receive certificates and issue permits at points remote from county seats.

The original death certificates thus filed with Local Registrars (or Subregistrars) each month are required by law to be forwarded to the State Registrar on or before the fifth day of the following month, the date having been changed from the eighth to the fifth by an amendment enacted in 1907. In the State Bureau of Vital Statistics the statistical data on the death certificates are transferred to tabulation cards such as are used in the Federal Census Bureau by means of a keyboard punching machine. The tabulation cards are punched to show for each death the following particulars: sex, color (or race), month of death, age, conjugal (or marital) condition, birthplace, birthplace of father, birthplace of mother (by countries for the foreign born), occupation, cause of death, and length of residence in California. Occupations and causes of death are necessarily designated by index numbers, the key for occupations being like that used in the Vital Statistics Division of the Federal Census Bureau, and the key for deaths agreeing with the International Classification of Causes of Death. Each tabulation card also shows, by certain holes punched according to a definite system, the registration district (the county and the freeholders' charter city or other city or town), as well as the local registered number of the certificate to which the card corresponds.

Although the tabulation cards are meant to be sorted and counted by electrical tabulating devices such as are used in the Federal Census Bureau and other statistical offices, the cards in the California Bureau of Vital Statistics have so far been sorted and tabulated only by hand. On this account the tabulations have necessarily been limited to causes of death, and, in addition, to only sex, race, nativity (of white decedents), and age periods. Because of the lack of clerical assistance it has also been impossible to make these detailed tabulations for leading cities or individual counties, but only for certain geographic divisions.

Geographic Divisions.—For convenience in tabulation the fifty-seven counties of California have been grouped in three main and eight minor geographic divisions. The three main divisions are Northern, Central, and Southern California. The line between Northern and Central California has been drawn at the southern boundary of Placer, Sutter, Colusa, Napa, and Sonoma counties, or the northern boundary of El Dorado, Sacramento, Yolo, and Marin counties. This dividing line extends irregularly from Lake Tahoe to the Pacific Ocean somewhat north of San Francisco Bay. The line between Central and Southern California has been drawn at the southern boundary of Inyo, Kern, and San Luis Obispo counties, or the northern boundary of San Bernardino, Los Angeles, Ventura, and Santa Barbara counties. This line is familiarly located by Tehachapi pass.

In both Northern and Central California, divisions have been made between the coast and the interior counties. In each case the coast counties include some counties not actually contiguous to the Pacific Ocean but yet on the westward side of the Coast Range. Moreover, in Central California, San Francisco, and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo) have been made minor geographic divisions. Similarly, in Southern California, Los Angeles has been made a minor geographic division in contrast with the other six counties south of Tehachapi.

The three main and eight minor geographic divisions are as follows, the counties in each group being arranged alphabetically for the sake of ready reference:

TABLE 1.—*Main and Minor Geographic Divisions of California, with Counties included in each.*

Northern California.

Coast Counties.

Del Norte
Humboldt
Lake
Mendocino
Napa
Sonoma
Trinity

Interior Counties.

Butte
Colusa
Glenn
Lassen
Modoc
Nevada
Placer
Plumas
Shasta
Sierra
Siskiyou
Sutter
Tehama
Yuba

Central California.

San Francisco
(City and County).

Other Bay Counties.

Alameda
Contra Costa
Marin
San Mateo

Coast Counties.

Monterey
San Benito
San Luis Obispo
Santa Clara
Santa Cruz

Interior Counties.

Alpine
Amador
Calaveras
El Dorado
Fresno
Inyo
Kern
Kings
Madera
Mariposa
Merced
Mono
Sacramento
San Joaquin
Solano
Stanislaus
Tulare
Tuolumne
Yolo

Southern California.

Los Angeles.

Other Counties.

Orange
Riverside
San Bernardino
San Diego *
Santa Barbara
Ventura

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* Includes Imperial County, formed August 15, 1907.

Increase, 1906 to 1907.—The following table gives the deaths, exclusive of stillbirths, reported for 1906 and 1907, as well as the number and per cent of increase (or decrease) for each geographic division indicated above, as well as for certain combinations of these divisions:

TABLE 2.—*Increase of Deaths, for Geographic Divisions: 1906 to 1907.*

GEOGRAPHIC DIVISION.	Deaths.		Increase.	
	1907.	1906.	Number.	Per Cent.
THE STATE	31,095	29,303	1,792	6.1
Northern California	3,944	3,528	416	11.8
Coast counties	1,761	1,614	147	9.1
Interior counties	2,183	1,914	269	14.1
Central California	18,063	17,692	371	2.1
San Francisco	6,575	7,151	576*	8.1*
Other bay counties	4,426	3,911	515	13.2
Coast counties	2,121	2,223	102*	4.6*
Interior counties	4,941	4,407	534	12.1
Southern California	9,088	8,083	1,005	12.4
Los Angeles	6,346	5,471	875	16.0
Other counties	2,742	2,612	130	5.0
Northern and Central California	22,007	21,220	787	3.7
Coast counties	14,883	14,899	16*	0.1*
Interior counties	7,124	6,321	803	12.7
Metropolitan area	11,001	11,062	61*	0.6*
Rural counties	11,006	10,158	848	8.3

* Decrease.

Exclusive of stillbirths, altogether 31,095 deaths were reported for 1907, as compared with 29,303 for 1906. The increase of deaths for 1907 over 1906 was only 1,792, or 6.1 per cent, the mortality for 1906 having been swollen unduly by the 750 deaths ascribed to earthquake and fire.

The effect of abnormal conditions in April, 1906, also appears in the fact that fewer deaths were reported for 1907 than for 1906 in San Francisco, as well as in the coast counties of Central California, the division in which Agnews State Hospital is situated. The decrease of deaths in the coast counties is less than the number of deaths from earthquake at Agnews State Hospital but the decrease of deaths in San Francisco is somewhat greater than the number of deaths there from earthquake and fire, 576 against 503. There were slight decreases of deaths for 1907 as compared with 1906 in the whole metropolitan area, comprising San Francisco and the other bay counties, as well as in the coast counties of Northern and Central California, these decreases being due to the unusual number of deaths in April, 1906, in the city and county of San Francisco and in the counties of Santa Clara (Agnews State Hospital) and Sonoma (Santa Rosa city).

In the counties north of Tehachapi the deaths for 1907 numbered 22,007, against 21,220 for 1906, the increase being 787, or only 3.7

per cent. The per cent of increase was 11.8 for Northern California and only 2.1 for Central California. For Southern California the totals were 9,088 in 1907 and 8,083 in 1906, a gain of 1,005, or 12.4 per cent.

The per cents of increase in deaths for minor geographic divisions were as follows: Los Angeles, 16.0; interior counties of Northern California, 14.1; bay counties other than San Francisco, 13.2; interior counties of Central California, 12.1; coast counties of Northern California, 9.1; and counties of Southern California other than Los Angeles, 5.0. The rate of gain was 12.1 for the interior counties of Northern and Central California, and 8.3 for all the rural counties north of Tehachapi.

DEATH-RATES: 1907 AND 1906.

Geographic Divisions.—In order to calculate death-rates the population of California has been estimated conservatively according to the Census Bureau method by adding to the population in 1900 six tenths of the increase between 1890 and 1900 for 1906, and seven tenths for 1907, except that for the few counties showing decreases between the last two Federal censuses the population in 1900 has been taken for both 1906 and 1907, and for the three principal cities arbitrary estimates have been made because of their exceptional conditions of growth. The estimate for San Francisco in 1906 was 450,000, for Los Angeles 200,000, and for Oakland 200,000, while for 1907 the estimates were, respectively, 450,000, 250,000, and 200.000, the estimates for San Francisco and Oakland remaining unchanged for 1907 because of possible overestimates for 1906.

The following table shows the population as thus estimated, the deaths, exclusive of stillbirths, and the death-rate per 1,000 population, for the several geographic divisions in both 1907 and 1906:

TABLE 3.—*Estimated Population, Deaths, and Death-rate per 1,000 Population, for Geographic Divisions: 1907 and 1906.*

GEOGRAPHIC DIVISION.	Estimated Population.		Deaths.		Death-rate per 1,000 Population.	
	1907.	1906.	1907.	1906.	1907.	1906.
THE STATE	2,001,193	1,882,846	31,095	29,303	15.5	15.6
Northern California	274,686	272,095	3,944	3,528	14.4	13.0
Coast counties	124,373	123,078	1,761	1,614	14.2	13.1
Interior counties	150,313	149,017	2,183	1,914	14.5	12.8
Central California	1,235,303	1,175,186	18,063	17,692	14.6	15.1
San Francisco	450,000	450,000	6,575	7,151	14.6	15.9
Other bay counties	332,936	279,528	4,426	3,911	13.3	14.0
Coast counties	135,566	133,967	2,121	2,223	15.6	16.6
Interior counties	316,801	311,691	4,941	4,407	15.6	14.1
Southern California	491,204	435,565	9,088	8,083	18.5	18.6
Los Angeles	333,481	281,243	6,346	5,471	19.0	19.5
Other counties	157,723	154,322	2,742	2,612	17.4	16.9
Northern and Central California	1,509,989	1,447,281	22,007	21,220	14.6	14.7
Coast counties	1,042,875	986.573	14,883	14,899	14.3	15.1
Interior counties	467,114	460,708	7,124	6,321	15.3	13.7
Metropolitan area	782,936	729,528	11,001	11,062	14.1	15.2
Rural counties	727,053	717,753	11,006	10,158	15.1	14.2

For an estimated State population of 2,001,193 in 1907, the 31,095 deaths give a rate of 15.5, while for an estimated population of 1,882,846 in 1906, the 29,303 deaths represent a rate of 15.6 per 1,000 inhabitants.

The death-rates each year were highest for Southern California, 18.5

and 18.6 in 1907 and 1906, respectively; next for Central California, 14.6 and 15.1; and lowest for Northern California, 14.4 and 13.0.

The death-rate for Northern and Central California together was 14.6 in 1907 and 14.7 in 1906. The rate was less for the coast counties than for the interior counties in 1907, but contrariwise in 1906, and was similarly less for the metropolitan area than for the rural counties in 1907, but not in 1906, when the April earthquake disturbed things in the metropolis and in adjoining coast counties.

The death-rates in minor geographic divisions were highest each year for Los Angeles, 19.0 in 1907 and 19.5 in 1906; next for the other counties south of Tehachapi, 17.4 and 16.9; and next for the coast counties of Central California, 15.6 and 16.6. These are the only divisions with death-rates above the State averages both years, though the rate was also above the State average for the interior counties of Central California in 1907 and for San Francisco in 1906. Each year the death-rate was below the State average, 15.5 and 15.6, for both the coast and interior counties of Northern California, as well as for the bay counties other than San Francisco.

CAUSES OF DEATH: 1907 AND 1906.

The State.—The following table gives the number of deaths in California from certain principal causes, as well as the proportion per 1,000 total deaths and also the death-rate per 100,000 estimated population (2,001,193 in 1907 and 1,882,846 in 1906):

TABLE 4.—*Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths and Death-rate per 100,000 Population, for California: 1907 and 1906.*

Cause of Death.	Deaths.		Proportion per 1,000 Total Deaths.		Death-rate per 100,000 Population.	
	1907.	1906.	1907.	1906.	1907.	1906.
All Causes	31,095	29,303	1,000.0	1,000.0	1,553.8	1,556.3
Typhoid fever	558	657	17.9	22.4	27.9	34.9
Malarial fever	70	111	2.2	3.8	3.5	5.9
Smallpox	6	36	0.2	1.2	0.3	1.9
Measles	189	169	6.1	5.8	9.4	9.0
Scarlet fever	72	52	2.3	1.8	3.6	2.8
Whooping-cough	173	122	5.6	4.2	8.6	6.5
Diphtheria and croup	380	244	12.2	8.3	19.0	13.0
Influenza	114	196	3.7	6.7	5.7	10.4
Plague	82	--------	2.6	--------	4.1	--------
Other epidemic diseases	121	174	3.9	5.9	6.1	9.2
Tuberculosis of lungs	4,040	3,861	129.9	131.7	201.9	205.1
Tuberculosis of other organs	567	576	18.2	19.7	28.3	30.6
Cancer	1,590	1,502	51.1	51.3	79.4	79.8
Other general diseases	1,095	1,016	35.2	34.7	54.7	54.0
Meningitis	657	466	21.1	15.9	32.8	24.7
Other diseases of nervous system	2,403	2,297	77.3	78.4	120.1	122.0
Diseases of circulatory system	4,362	3,766	140.3	128.5	218.0	200.0
Pneumonia and broncho-pneumonia	2,678	2,431	86.1	83.0	133.8	129.1
Other diseases of respiratory system	910	756	29.3	25.8	45.6	40.1
Diarrhea and enteritis, under 2 years	899	930	28.9	31.7	44.9	49.4
Diarrhea and enteritis, 2 years and over	288	338	9.3	11.5	14.4	17.9
Other diseases of digestive system	1,588	1,410	51.1	48.1	79.3	74.9
Bright's disease and nephritis	1,787	1,622	57.5	55.4	89.3	86.2
Childbirth	265	266	8.5	9.1	13.2	14.1
Diseases of early infancy	1,031	946	33.2	32.3	51.5	50.2
Suicide	608	501	19.6	17.1	30.4	26.6
Earthquake and fire	--------	750	--------	25.6	--------	39.8
Other violence	2,711	2,152	87.2	73.4	135.5	114.3
All other causes	1,851	1,956	59.5	66.7	92.5	103.9

Tuberculosis is the principal cause of death in California. Each year over one seventh of all deaths in the State were due to this disease, the per cent being 14.8 for 1907 and 15.1 for 1906. In 1907, 13.0 per cent of all deaths were from tuberculosis of the lungs and 1.8 per cent from tuberculosis of other organs, the corresponding figures for 1906 being 13.2 and 1.9, respectively. The death-rate per 100,000 population was 230.2 in 1907 and 235.7 in 1906 for all forms of tuberculosis.

Next to tuberculosis come diseases of the circulatory system, heart disease, etc. These diseases caused over one eighth of all deaths. 14.0 and 12.9 per cent in 1907 and 1906, and have rates of 218.0 and 200.0, respectively, per 100,000 population.

Next come diseases of the respiratory system, which caused about one ninth of all deaths in the State, 11.5 per cent in 1907 and 10.9

per cent in 1906. In 1907, pneumonia and broncho-pneumonia caused 8.6 per cent of the deaths and other diseases of the respiratory system caused 2.9 per cent, the per cents for 1906 being 8.3 for pneumonia and 2.6 for other diseases. The death-rate per 100,000 inhabitants for all diseases of the respiratory system was 179.4 in 1907 and 169.2 in 1906.

Following pneumonia and other diseases of the respiratory system come meningitis and other diseases of the nervous system. These diseases caused nearly one tenth of all deaths, 9.8 per cent in 1907 and 9.4 per cent in 1906, and have death-rates of 152.9 and 146.7 each year, respectively.

The proportions were next highest in the following cases: diseases of the digestive system (diarrhea and enteritis, etc.), 8.9 per cent in 1907 and 9.1 per cent in 1906; violence other than suicide (or earthquake and fire), 8.7 and 7.3 per cent in 1907 and 1906; cancer, 5.1 per cent each year; and Bright's disease and nephritis, 5.1 per cent in 1907 and 4.8 per cent in 1906.

Of the epidemic diseases, typhoid fever was by far the most fatal each year, causing 558 deaths, or 1.8 per cent of all, in 1907 and 657, or 2.2 per cent, in 1906. Diphtheria and croup caused 380 deaths, or 1.2 per cent, in 1907 and 244, or 0.8 per cent, in 1906. Deaths from other important epidemic diseases occurred as follows: measles, 189 and 169 in 1907 and 1906, respectively; whooping-cough, 173 and 122; influenza, 114 and 196; plague, 82 in 1907 but none in 1906; scarlet fever, 72 in 1907 and 52 in 1906; malarial fever, 70 and 111; and smallpox, 6 and 36.

Including cases first reported in the latter half of 1906, or even in 1907, altogether 750* deaths, or 2.6 per cent of all for the calendar year 1906 are charged against the earthquake and fire of April, 1906. The number given includes only the deaths known to have resulted from this public calamity, and may perhaps understate the loss of life resulting from this seismic disturbance. However, the total does include several deaths resulting only indirectly from earthquake and fire, as deaths of aged persons from fright or heart disease and deaths of infants from exposure.

The 750 deaths resulting directly or indirectly from earthquake and fire occurred in the following counties: San Francisco, 503; Santa Clara, 141; Sonoma, 72; Alameda, 12; Santa Cruz, 7; San Benito and Sacramento, 3 each; Mendocino, Napa, and Solano, 2 each; and Glenn, Nevada, and Los Angeles, 1 each. The bulk of the deaths in Santa Clara County were at the State Hospital at Agnews, and nearly all in Sonoma County were in Santa Rosa city. Most of the deaths in the other counties named occurred among refugees from San Francisco suffering from fright or exposure.

Main Geographic Divisions.—The table which follows gives for the three main geographic divisions in 1907 and 1906 the number of deaths from certain principal causes, as well as the proportion from each cause per 1,000 total deaths. The death-rates per 100,000 population are not shown for geographic divisions, because of the difficulty of estimating population for different localities with sufficiently equal accuracy to justify the comparison of detailed death-rates for individual causes of death.

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* This total differs from that of 709 given for the fiscal year 1905-1906 in the Nineteenth Biennial Report, page 90, because of 40 additional cases in San Francisco and 1 in Santa Cruz County not recorded in the State Bureau when the former report was printed.

TABLE 5.—*Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Main Geographic Divisions: 1907 and 1906.*

CAUSE OF DEATH.	The State.		Northern California.		Central California.		Southern California.	
	1907.	1906.	1907.	1906.	1907.	1906.	1907.	1906.
DEATHS.								
ALL CAUSES	31,095	29,308	3,944	3,528	18,063	17,692	9,088	8,083
Typhoid fever	558	657	61	71	373	460	124	126
Malarial fever	70	111	29	54	35	49	6	8
Smallpox	6	36	------	4	6	32	------	------
Measles	189	169	44	14	124	102	21	53
Scarlet fever	72	52	16	6	44	38	12	8
Whooping cough	173	122	28	28	98	67	47	27
Diphtheria and croup	380	244	51	32	233	134	96	78
Influenza	114	196	22	52	57	88	35	56
Plague	82	------	------	------	82	------	------	------
Other epidemic diseases	121	174	25	29	63	98	33	47
Tuberculosis of lungs	4,040	3,861	371	374	2,024	1,912	1,645	1,575
Tuberculosis of other organs	567	576	63	52	319	357	185	167
Cancer	1,590	1,502	134	155	991	911	465	436
Other general diseases	1,095	1,016	175	135	617	593	303	288
Meningitis	657	466	60	42	411	288	186	141
Other diseases of nervous system	2,403	2,297	419	400	1,268	1,232	716	665
Diseases of circulatory system	4,362	3,766	494	433	2,703	2,442	1,165	891
Pneumonia and broncho-pneumonia	2,678	2,431	395	266	1,686	1,616	597	549
Other diseases of respiratory system	910	756	111	93	542	458	257	205
Diarrhea and enteritis, under 2 years	899	930	80	73	558	637	261	220
Diarrhea and enteritis, 2 years and over	288	338	39	27	163	225	86	86
Other diseases of digestive system	1,588	1,410	183	173	946	851	459	386
Bright's disease and nephritis	1,787	1,622	188	147	1,025	977	574	498
Childbirth	265	266	30	37	169	162	66	67
Diseases of early infancy	1,031	946	81	62	614	571	336	313
Suicide	608	501	81	66	367	297	160	138
Earthquake and fire	------	750	------	78	------	671	------	1
Other violence	2,711	2,152	447	299	1,523	1,281	741	572
All other causes	1,851	1,956	317	326	1,022	1,148	512	482
PROPORTION PER 1,000 TOTAL DEATHS.								
ALL CAUSES	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.
Typhoid fever	17.9	22.4	15.5	20.1	20.6	26.0	13.6	15.6
Malarial fever	2.2	3.8	7.3	15.3	1.9	2.8	0.7	1.0
Smallpox	0.2	1.2	------	1.1	0.3	1.8	------	------
Measles	6.1	5.8	11.1	4.0	6.9	5 8	2.3	6.6
Scarlet fever	2.3	1.8	4.1	1.7	2.4	2.1	1.3	1.0
Whooping-cough	5.6	4.2	7.1	7.9	5.4	3.8	5.2	3.3
Diphtheria and croup	12.2	8.3	12.9	9.1	12.9	7.6	10.5	9.7
Influenza	3.7	6.7	5.6	14.7	3.2	5.0	3.8	6.9
Plague	2.6	------	------	------	4.5	------	------	------
Other epidemic diseases	3.9	5.9	6.3	8.2	3.5	5.5	3.6	5.8
Tuberculosis of lungs	129.9	131.7	94.1	106.0	112.1	108.1	181.0	194.9
Tuberculosis of other organs	18.2	19.7	16.0	14.7	17.7	20.2	20.4	20.7
Cancer	51.1	51.3	34.0	43.9	54.9	51.5	51.2	53.9
Other general diseases	35.2	34.7	44.4	38.3	34.2	33.5	33.3	35.
Meningitis	21.1	15.9	15.2	11.9	22.8	16.0	20.5	17.4
Other diseases of nervous system	77.3	78.4	106.2	113.4	70.2	69.6	78.8	82.3
Diseases of circulatory system	140.3	128.5	125.2	122.7	149.6	138.0	128.2	110.2
Pneumonia and broncho-pneumonia	86.1	83.0	100.3	75 4	93.3	91.3	65.7	67.9
Other diseases of respiratory system	29.3	25.8	28.1	26.4	30.0	25.9	28.3	25.4
Diarrhea and enteritis, under 2 years	28.9	31.7	20.3	20.7	30.9	36.0	28.7	27.
Diarrhea and enteritis, 2 years and over	9.3	11.5	9.9	7.7	9.0	12.7	9.5	10.6
Other diseases of digestive system	51.1	48.1	46.4	49.0	52.4	48.1	50.5	47.8
Bright's disease and nephritis	57.5	55.4	47.7	41.7	56.7	55.2	63.2	61.6
Childbirth	8.5	9.1	7.6	10.5	9.4	9.2	7.3	8.3
Diseases of early infancy	33.2	32.3	20.5	17.6	34.0	32.3	37 0	38.7
Suicide	19.6	17.1	20.5	18.7	20.3	16.8	17.6	17.1
Earthquake and fire	------	25.6	------	22.1	------	37.9	------	0.1
Other violence	87.2	73.4	113.3	84.8	84.3	72.4	81.5	70.8
All other causes	59.5	66.7	80.4	92.4	56.6	64.9	56.3	59.6

This table shows that the proportions for typhoid fever were particularly high for Central California, 20.6 and 26.0 in 1907 and 1906, against State averages of 17.9 and 22.4 per 1,000. The proportions for diphtheria and croup were above the State average of 12.2 per 1,000 for 1907 in Northern and Central California, 12.9 in each case, and were above the State average of 8.3 for 1906 in Southern and Northern California, 9.7 for the former and 9.1 for the latter, but not in Central California (7.6).

The proportions for Northern California are particularly high for diseases of the nervous system other than meningitis, being 106.2 and 113.4 for this main division, against 77.3 and 78.4 for the whole State, and for violence other than suicide (or earthquake and fire), being 113.3 and 84.8 for this division, against 87.2 and 73.4 for the State.

Central California excels especially in the proportions for diseases of the circulatory system (heart disease, etc.), 149.6 and 138.0, against State averages of 140.3 and 128.5, and for pneumonia and bronchopneumonia, 93.3 and 91.3, against general averages of 86.1 and 83.0 in 1907 and 1906, respectively.

Southern California leads decidedly in the proportions for tuberculosis. The proportions per 1,000 total deaths for tuberculosis of the lungs were no less than 181.0 and 194.9 for this main division, against only 129.9 and 131.7 for the entire State and for tuberculosis of other organs were 20.4 and 20.7 for this division against 18.2 and 19.7 for the State.

Minor Geographic Divisions.—The table on the following pages presents similar figures for the eight minor geographic divisions:

TABLE 6.—*Deaths from Certain Principal Causes, with Proportion*

CAUSE OF DEATH.	Deaths.						
	The State	Northern California.		Central California.			
		Coast Counties.	Interior Counties.	San Francisco	Other Bay Counties.	Coast Counties.	Interior Counties.
1907.							
ALL CAUSES	31,095	1,761	2,183	6,575	4,426	2,121	4,941
Typhoid fever	558	13	48	123	101	39	110
Malarial fever	70	1	28	6	7	------	22
Smallpox	6	------	------	4	1	------	1
Measles	189	30	14	53	26	9	36
Scarlet fever	72	4	12	8	9	3	24
Whooping-cough	173	20	8	43	26	8	21
Diphtheria and croup	380	17	34	72	81	16	64
Influenza	114	5	17	8	13	12	24
Plague	82	------	------	74	8	------	------
Other epidemic diseases	121	9	16	16	13	12	22
Tuberculosis of lungs	4,040	176	195	684	489	241	610
Tuberculosis of other organs	567	43	20	118	88	36	77
Cancer	1,590	65	69	434	216	119	222
Other general diseases	1,096	76	99	230	144	63	180
Meningitis	657	28	32	146	104	44	117
Other diseases of nervous system	2,403	272	147	342	311	195	420
Diseases of circulatory system	4,632	236	258	1,065	706	349	583
Pneumonia and broncho-pneumonia	2,678	141	254	708	409	139	430
Other diseases of respiratory system	910	48	63	194	122	78	148
Diarrhea and enteritis, under 2 years	899	38	42	217	146	63	132
Diarrhea and enteritis, 2 years and over	288	23	16	45	38	29	51
Other diseases of digestive system	1,588	89	94	357	214	117	258
Bright's disease and nephritis	1.787	89	99	391	263	136	235
Childbirth	265	11	19	50	47	31	41
Diseases of early infancy	1,031	42	39	244	144	74	152
Suicide	608	33	48	148	84	38	97
Other violence	2,711	134	313	483	404	159	477
All other causes	1,851	118	199	312	212	111	387
1906.							
ALL CAUSES	29,303	1,614	1,914	7,151	3,911	2,223	4,407
Typhoid fever	657	22	49	220	76	35	129
Malarial fever	111	5	49	6	5	------	38
Smallpox	36	1	3	20	5	------	7
Measles	169	11	3	57	27	4	14
Scarlet fever	52	2	4	16	12	2	8
Whooping-cough	122	11	17	32	22	7	6
Diphtheria and croup	244	12	20	45	52	9	28
Influenza	196	17	35	23	15	21	29
Other epidemic diseases	174	8	21	39	19	10	30
Tuberculosis of lungs	3,861	175	199	682	406	271	553
Tuberculosis of other organs	576	35	17	127	82	51	97
Cancer	1,502	74	81	356	235	116	204
Other general diseases	1,016	62	73	226	128	78	161
Meningitis	466	17	25	99	70	30	84
Other diseases of nervous system	2,297	242	158	401	259	203	369
Diseases of circulatory system	3,766	201	232	1,069	544	307	522
Pneumonia and broncho-pneumonia	2,431	111	155	727	395	137	357
Other diseases of respiratory system	756	36	57	199	117	52	90
Diarrhea and enteritis, under 2 years	930	36	37	277	153	73	134
Diarrhea and enteritis, 2 years and over	338	13	14	64	47	37	77
Other diseases of the digestive system	1,410	77	96	322	189	106	234
Bright's disease and nephritis	1,622	74	73	430	254	122	171
Childbirth	266	10	27	61	36	27	38
Diseases of early infancy	946	26	36	228	141	53	149
Suicide	501	31	35	140	65	32	60
Earthquake and fire	750	76	2	503	12	151	5
Other violence	2,152	110	189	438	275	159	409
All other causes	1,956	119	207	344	270	130	404

per 1,000 Total Deaths, for Minor Geographic Divisions: 1907 and 1906.

Deaths.		Proportion per 1,000 Total Deaths.								
Southern California.		The State	Northern California.		Central California.				Southern California.	
Los Angeles..	Other Counties.		Coast Counties.	Interior Counties.	San Francisco	Other Bay Counties.	Coast Counties.	Interior Counties.	Los Angeles..	Other Counties.
6,346	2,742	1,000.0	1.000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
87	37	17.9	7.4	22.0	18.7	22.8	18.4	22.3	13.7	13.5
4	2	2.2	0.6	12.8	0.9	1.6	-------	4.5	0.6	0.7
-------	-------	0.2	-------	-------	0.6	0.2	-------	0.2	-------	-------
16	5	6.1	17.0	6.4	8.1	5.9	4.2	7.3	2.5	1.8
9	3	2.3	2.3	5.5	1.2	2.0	1.4	4.9	1.4	1.1
31	16	5.6	11.4	3.7	6.5	5.9	3.8	4.2	4.9	5.8
75	21	12.2	9.7	15.6	11.0	18.3	7.5	12.9	11.8	7.7
25	10	3.7	2.8	7.8	1.2	2.9	5.7	4.9	3.9	3.6
-------	-------	2.6	-------	-------	11.3	1.8	-------	-------	-------	-------
26	7	3.9	5.1	7.3	2.4	2.9	5.7	4.5	4.1	2.6
1,150	495	129.9	99.9	89.3	104.0	110.5	113.6	123.4	181.2	180.5
136	49	18.2	24.4	9.2	17.9	19.9	17.0	15.6	21.4	17.9
345	120	51.1	36.9	31.6	66.0	48.8	56.1	44.9	54.4	43.8
218	85	35.2	43.2	45.3	35.0	32.5	29.7	36.4	34.4	31.0
145	41	21.1	15.9	14.7	22.2	23.5	20.8	23.7	22.9	14.9
447	269	77.3	154.4	67.3	52.0	70.3	91.9	85.0	70.4	98.1
830	335	140.3	134.0	118.2	162.0	159.5	164.5	118.0	130.8	122.2
439	158	86.1	80.1	116.3	107.7	92.4	65.5	87.0	69.2	57.6
170	87	29.3	27.3	28.9	29.5	27.6	36.8	30.0	26.8	31.7
184	77	28.9	21.6	19.2	33.0	33.0	29.7	26.7	29.0	28.1
61	25	9.3	13.1	7.3	6.8	8.6	13.7	10.3	9.6	9.1
340	119	51.1	50.5	43.1	54.3	48.4	55.2	52.2	53.6	43.4
409	165	57.5	50.5	45.3	59.5	59.4	64.1	47.6	64.5	60.2
51	15	8.5	6.2	8.7	7.6	10.6	14.6	8.3	8.0	5.5
249	87	33.2	23.9	17.9	37.1	32.5	34.9	30.8	39.2	31.7
111	49	19.6	18.7	22.0	22.5	19.0	17.9	19.6	17.5	17.9
468	273	87.2	76.1	143.4	73.5	91.3	75.0	96.5	73.8	99.6
320	192	59.5	67.0	91.2	47.5	47.9	52.3	78.3	50.4	70.0
5,471	2,612	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
84	42	22.4	13.6	25.6	30.8	19.4	15.8	29.3	15.4	16.1
5	3	3.8	3.1	25.6	0.8	1.3	-------	8.6	0.9	1.1
-------	-------	1.2	0.6	1.6	2.8	1.3	-------	1.6	-------	-------
42	11	5.8	6.8	1.6	8.0	6.9	1.8	3.2	7.7	4.2
6	2	1.8	1.2	2.1	2.2	3.1	0.9	1.8	1.1	0.8
13	14	4.2	6.8	8.9	4.5	5.6	3.2	1.4	2.4	5.4
59	19	8.3	7.4	10.4	6.3	13.3	4.1	6.4	10.8	7.3
28	28	6.7	10.5	18.3	3.2	3.8	9.5	6.6	5.1	10.7
34	13	5.9	5.0	11.0	5.5	4.9	4.5	6.8	6.2	5.0
1,049	526	131.7	108.4	104.0	95.4	103.8	121.9	125.5	191.7	201.4
112	55	19.7	21.7	8.9	17.8	21.0	22.9	22.0	20.5	21.1
304	132	51.3	45.9	42.3	49.8	60.1	52.2	46.3	55.6	50.5
212	76	34.7	38.4	38.1	31.6	32.7	35.1	36.5	38.8	29.1
98	43	15.9	10.5	13.1	13.8	17.9	13.5	19.1	17.9	16.5
394	271	78.4	149.9	82.6	56.1	66.2	91.3	83.7	72.0	103.7
640	251	128.5	124.5	121.2	149.5	139.1	138.1	118.4	117.0	96.1
387	162	83.0	68.8	81.0	101.7	101.0	61.6	81.0	70.7	62.0
143	62	25.8	22.3	29.8	27.8	29.9	23.4	20.4	26.1	23.7
147	73	31.7	22.3	19.3	38.7	39.1	32.8	30.4	26.9	28.0
57	29	11.5	8.1	7.3	8.9	12.0	16.6	17.5	10.4	11.1
288	98	48.1	47.7	50.1	45.0	48.3	47.7	53.1	52.6	37.5
336	162	55.4	45.9	38.1	60.1	65.0	54.9	38.8	61.4	62.0
48	19	9.1	6.2	14.1	8.5	9.2	12.1	8.6	8.8	7.3
232	81	32.3	16.1	18.8	31.9	36.1	23.8	33.8	42.4	31.0
102	36	17.1	19.2	18.3	19.6	16.6	14.4	13.6	18.6	13.8
1	-------	25.6	47.1	1.0	70.3	3.1	67.9	1.1	0.2	-------
365	207	73.4	68.2	98.7	61.3	70.3	71.5	92.8	66.7	79.2
285	197	66.7	73.8	108.2	48.1	69.0	58.5	91.7	52.1	75.4

From the proportions per 1,000 total deaths shown for minor geographic divisions it appears that the high proportions for typhoid fever noted for Central California were confined to San Francisco (30.8), and to the interior counties (29.3) in 1906, but that in 1907 the proportions were above the State average for all four divisions of Central California, especially the bay counties other than San Francisco (22.8), and the interior counties extending form Yolo, Sacramento, and El Dorado on the north to and including Kern in the south (22.3). The proportions for typhoid fever were also high each year for the interior counties of Northern California, 22.0 in 1907 and 25.6 in 1906.

The proportions for diphtheria and croup were above the State average of 12.2 for 1907 in the bay counties other than San Francisco (18.3), the interior counties of Northern California (15.6), and the interior counties of Central California (12.9), and were above the State average of 8.3 for 1906 for the bay counties other than San Francisco (13.3), for Los Angeles (10.8), and for the interior counties of Northern California (10.4).

The coast counties of Northern California have very high proportions for diseases of the nervous system other than meningitis, 154.4 and 149.9 in 1907 and 1906, against State averages of 77.3 and 78.4. This is accounted for by the fact that many of the deaths reported for this geographic division occurred at the Mendocino and Napa State Hospitals. The proportions for diseases of the nervous system are also high for the counties south of Tehachapi except Los Angeles (98.1 and 103.7), and for the coast counties of Central California (91.9 and 91.3), the former division including the Southern California State Hospital and the latter the Agnews State Hospital.

The interior counties of Northern California show proportions that are very high, 143.4 and 98.7, against State averages of 87.2 and 73.4, for miscellaneous deaths from violence, as drowning, railroad injuries, other accidents, etc.

The proportions for diseases of the circulatory system (140.3 and 128.5 for the State in 1907 and 1906) are particularly high for San Francisco (162.0 and 149.5), for the other bay counties (159.5 and 139.1), and for the adjoining coast counties (164.5 and 138.1).

The proportions for pneumonia and broncho-pneumonia (86.1 for the State in 1907 and 83.0 in 1906) are especially high for San Francisco (107.7 and 101.7), and for the other bay counties (92.4 and 101.0). The proportions for pneumonia were also high in 1907 for the interior counties of Northern California (116.3), as well as for the interior counties of Central California (87.0).

It is worth noting, incidentally, that the proportions of all deaths from diarrhea and enteritis among children under 2 years of age were no less than 33.0 and 38.7 for San Francisco, and 33.0 and 39.1 for the other bay counties, as compared with only 28.9 and 31.7 for the entire State. Moreover, the proportions for suicide were as great as 22.5 and 19.6 for San Francisco, against 19.6 and 17.1 for the State in 1907 and 1906, respectively.

The proportions for tuberculosis of the lungs, 129.9 in 1907 and 131.7 in 1906 for the State, were as great as 181.2 and 191.7 for Los

Angeles and 180.5 and 201.4 for the other counties of Southern California. Similarly, as compared with State averages of 18.2 and 19.7 for tuberculosis of other organs, the proportions per 1,000 total deaths were 21.4 and 20.5 for Los Angeles and 17.9 and 21.1 for the remaining counties south of Tehachapi.

Urban and Rural Districts.—The table which follows has been prepared to bring out the contrast between mortality conditions in urban and rural districts, figures like those in preceding tables being given here for the metropolitan area, comprising San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as compared with the rural counties of Northern and Central California:

TABLE 7.—*Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Metropolitan Area and Rural Counties of Northern and Central California: 1907 and 1906.*

CAUSE OF DEATH.	Northern and Central California.		Metropolitan Area.		Rural Counties.	
	1907.	1906.	1907.	1906.	1907.	1906.
DEATHS.						
ALL CAUSES	22,007	21,220	11,001	11,062	11,006	10,158
Typhoid fever	434	531	224	296	210	235
Malarial fever	64	103	13	11	51	92
Smallpox	6	36	5	25	1	11
Measles	168	116	79	84	89	32
Scarlet fever	60	44	17	28	43	16
Whooping-cough	126	95	69	54	57	41
Diphtheria and croup	284	166	153	97	131	69
Influenza	79	140	21	38	58	102
Plague	82	-------	82	-------	-------	-------
Other epidemic diseases	88	127	29	58	59	69
Tuberculosis of lungs	2,395	2,286	1,173	1,088	1,222	1,198
Tuberculosis of other organs	382	409	206	209	176	200
Cancer	1,125	1,066	650	591	475	475
Other general diseases	792	728	374	354	418	374
Meningitis	471	325	250	169	221	156
Other diseases of nervous system	1,687	1,632	653	660	1,034	972
Diseases of circulatory system	3,197	2,875	1,771	1,613	1,426	1,262
Pneumonia and broncho-pneumonia	2,081	1,882	1,117	1,122	964	760
Other diseases of respiratory system	653	551	316	316	337	235
Diarrhea and enteritis, under 2 years	638	710	363	430	275	280
Diarrhea and enteritis, 2 years and over	202	252	83	111	119	141
Other diseases of digestive system	1,129	1,024	571	511	558	513
Bright's disease and nephritis	1,213	1,124	654	684	559	440
Childbirth	199	199	97	97	102	102
Diseases of early infancy	695	633	388	369	307	264
Suicide	448	363	232	205	216	158
Earthquake and fire	-------	749	-------	515	-------	234
Other violence	1,970	1,580	887	713	1,083	867
All other causes	1,339	1,474	524	614	815	860

TABLE 7.—*Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Metropolitan Area and Rural Counties of Northern and Central California: 1907 and 1906—Continued.*

CAUSE OF DEATH.	Northern and Central California.		Metropolitan Area.		Rural Counties.	
	1907.	1906.	1907.	1906.	1907.	1906.
PROPORTION PER 1,000 TOTAL DEATHS.						
ALL CAUSES	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
Typhoid fever	19.7	25.0	20.4	26.8	19.1	23.1
Malarial fever	2.9	4.8	1.2	1.0	4.6	9.1
Smallpox	0.3	1.7	0.5	2.3	0.1	1.1
Measles	7.6	5.5	7.2	7.6	8.1	3.2
Scarlet fever	2.7	2.1	1.5	2.5	3.9	1.6
Whooping-cough	5.7	4.5	6.3	4.9	5.2	4.0
Diphtheria and croup	12.9	7.8	13.9	8.8	11.9	6.8
Influenza	3.6	6.6	1.9	3.4	5.3	10.0
Plague	3.7	------	7.5	------	------	------
Other epidemic diseases	4.0	6.0	2.6	5.2	5.4	6.8
Tuberculosis of lungs	108.8	107.7	106.6	98.4	111.0	117.9
Tuberculosis of other organs	17.4	19.3	18.7	18.9	16.0	19.7
Cancer	51.1	50.2	59.1	53.4	43.1	46.8
Other general diseases	36.0	34.3	34.0	32.0	38.0	36.8
Meningitis	21.4	15.3	22.7	15.3	20.1	15.4
Other diseases of nervous system	76.7	76.9	59.4	59.7	93.9	95.7
Diseases of circulatory system	145.3	135.5	161.0	145.8	129.6	124.2
Pneumonia and broncho-pneumonia	94.6	88.7	101.5	101.4	87.6	74.8
Other diseases of respiratory system	29.7	26.0	28.7	28.6	30.6	23.1
Diarrhea and enteritis, under 2 years	29.0	33.4	33.0	38.9	25.0	27.6
Diarrhea and enteritis, 2 years and over	9.2	11.9	7.5	10.0	10.8	13.9
Other diseases of digestive system	51.3	48.2	51.9	46.2	50.7	50.5
Bright's disease and nephritis	55.1	53.0	59.5	61.8	50.8	43.3
Childbirth	9.0	9.4	8.8	8.8	9.3	10.0
Diseases of early infancy	31.6	29.8	35.3	33.4	27.9	26.0
Suicide	20.4	17.1	21.1	18.5	19.6	15.6
Earthquake and fire	------	35.3	------	46.5	------	23.0
Other violence	89.5	74.5	80.6	64.4	98.4	85.3
All other causes	60.8	69.5	47.6	55.5	74.0	84.7

There were substantially the same number of deaths each year in the metropolitan area as in all the other counties north of Tehachapi, the totals being respectively 11,001 and 11,006 in 1907 and 11,062 and 10,158 in 1906. However, there are marked differences between the whole urban area and the rural districts in the distribution of deaths by main causes.

The proportion per 1,000 total deaths for typhoid fever was 20.4 in 1907 and 26.8 in 1906 for the metropolitan area, as compared with only 19.1 and 23.1 for the rural counties. Similarly, the proportions for diphtheria and croup were 13.9 and 8.8 for the urban territory, against only 11.9 and 6.8 for the country districts. On the other hand, the proportions for malarial fever were 4.6 and 9.1 for the rural counties in 1907 and 1906, respectively, against merely 1.2 and 1.0 for the metropolitan area.

The proportion of deaths from diseases of the circulatory system (heart disease, etc.) is very much higher for the urban territory than for the country districts, the proportions for the former in 1907 and 1906 being as great as 161.0 and 145.8, against only 129.6 and 124.2 for the latter. The proportions for Bright's disease and nephritis, which often occur with heart disease, were also higher each year for the metropolitan area (59.5 and 61.8) than for the rural counties (50.8 and 43.3).

Other important cases in which the proportions per 1,000 total deaths were higher in both 1907 and 1906 for the urban territory than for the country districts are, as follows: pneumonia and bronchopneumonia, 101.5 and 101.4, against 87.6 and 74.8; cancer, 59.1 and 53.4, against 43.1 and 46.8; diarrhea and enteritis, under 2 years, 33.0 and 38.9, against 25.0 and 27.6; diseases of early infancy (under 3 months), 35.3 and 33.4, against 27.9 and 26.0; and suicide, 21.1 and 18.5, against 19.6 and 15.6.

On the other hand, the proportions were higher in both 1907 and 1906 for the rural counties than for the metropolitan area in the following notable instances: tuberculosis of the lungs, 111.0 and 117.9, as compared with 106.6 and 98.4; general diseases other than tuberculosis and cancer, 38.0 and 36.8, as compared with 34.0 and 32.0; diseases of the nervous system other than meningitis, 93.9 and 95.7, as compared with 59.4 and 59.7; violence other than suicide (or earthquake and fire) 98.4 and 85.3, as compared with 80.6 and 64.4; and miscellaneous causes (including "old age"), 74.0 and 84.7, as compared with 47.6 and 55.5.

In short, there are relatively more deaths in urban than in rural districts from heart disease, Bright's disease, pneumonia, cancer, infancy and infantile diarrhea, and suicide, as well as from typhoid fever and from diphtheria and croup. However, there is a relatively greater mortality in country districts than in the urban area from tuberculosis, other general diseases, diseases of the nervous system, violence, and "old age," as well as from malarial fever.

TUBERCULOSIS IN CALIFORNIA.

The State.—Tuberculosis is the principal cause of death in California, being the cause of about one seventh of all deaths. Of 31,095 deaths reported to the State Bureau of Vital Statistics for 1907, 4,607, or 14.8 per cent, were from tuberculosis, and of 29,303 deaths reported for 1906, 4,437, or 15.1 per cent, were also from the "great white plague." The totals for diseases of the circulatory system were only 4,362 and 3,766 for 1907 and 1906, respectively; for diseases of the respiratory system, 3,588 and 3,187; for diseases of the nervous system, 3,060 and 2,763; and for diseases of the digestive system, 2,775 and 2,678.

From tuberculosis of the lungs there were 4,040 deaths in 1907, as compared with 3,861 in 1906, while from tuberculosis of other organs there were 567 deaths in 1907 against 576 in 1906.* Of each 1,000 deaths in California in 1907, 129.9 were from tuberculosis of the lungs and 18.2 from tuberculosis of other organs, or 148.1 from tuberculosis of all forms. In 1906 the proportions were 131.7 for tuberculosis of the lungs and 19.7 for tuberculosis of other organs, or 151.4 for all forms.

For an estimated State population of 2,001,193 in 1907 the death-rate per 100,000 inhabitants is 201.9 for tuberculosis of the lungs and 28.3 for tuberculosis of other organs, or altogether 230.2 for all forms of tuberculosis. Similarly, for an estimated population of 1,882,846 in 1906 the death-rate per 100,000 is 205.1 for pulmonary tuberculosis and 30.6 for other forms, or 235.7 for all kinds. In short, the tuberculosis death-rate per 100,000 was no less than 230.2 for 1907 and 235.7 for 1906.

The general death-rate per 1,000 population was 15.5 for California in 1907 and 15.6 in 1906, the rates being swollen greatly by deaths from tuberculosis. It will be shown that many deaths from tuberculosis in California occur among persons of short residence in the State, who evidently came here when too far gone with the disease to be cured. It is also quite likely that many other cases arising here are directly due to this imported infection.

Geographic Divisions.—Southern California is an especially popular resort for consumptives, and here over one fifth of all deaths are due to tuberculosis. The table on the opposite page shows the number and per cent of deaths from tuberculosis for the several geographic divisions of the State in both 1907 and 1906:

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*The distribution of deaths from tuberculosis other than pulmonary was as follows:

	1907.	1906.
Tuberculosis of larynx	29	23
Tuberculous meningitis	230	246
Abdominal tuberculosis	161	166
Pott's disease	26	30
Tuberculous abscess	1	4
White swelling	10	15
Tuberculosis of other organs	28	28
General tuberculosis	82	64
Total	567	576

TABLE 8.—*Number and Per Cent of Deaths from Tuberculosis, for Geographic Divisions: 1907 and 1906.*

GEOGRAPHIC DIVISION.	Deaths.		Tuberculosis.			
			Number		Per Cent.	
	1907.	1906.	1907.	1906.	1907.	1906.
THE STATE	31,095	29,303	4,607	4,437	14.8	15.1
Northern California	3,944	3,528	434	426	11.0	12.1
Coast counties	1,761	1,614	219	210	12.4	13.0
Interior counties	2,183	1,914	215	216	9.8	11.3
Central California	18,063	17,692	2,343	2,269	13.0	12.8
San Francisco	6,575	7,151	802	809	12.2	11.3
Other bay counties	4,426	3,911	577	488	13.0	12.5
Coast counties	2,121	2,223	277	322	13.1	14.5
Interior counties	4,941	4,407	687	650	13.9	14.7
Southern California	9,088	8,083	1,830	1,742	20.1	21.6
Los Angeles	6,346	5,471	1,286	1,161	20.3	21.2
Other counties	2,742	2,612	544	581	19.8	22.2
Northern and Central California	22,007	21,220	2,777	2,695	12.6	12.7
Coast counties	14,883	14,899	1,875	1,829	12.6	12.3
Interior counties	7,124	6,321	902	866	12.7	13.7
Metropolitan area	11,001	11,062	1,379	1,297	12.5	11.7
Rural counties	11,006	10,158	1,398	1,398	12.7	13.8

This table shows that in Southern California in 1907, 20.1 per cent of all deaths were from tuberculosis, and in 1906 no less than 21.6 per cent. For Los Angeles County the per cents were 20.3 for 1907 and 21.2 for 1906, while for the other counties south of Tehachapi the per cents were respectively 19.8 and 22.2.

North of Tehachapi only one eighth of the deaths are due to tuberculosis, the per cents for Northern and Central California together being 12.6 for 1907 and 12.7 for 1906. The per cents for 1907 and 1906, respectively, were 13.0 and 12.8 for Central California and 11.0 and 12.1 for Northern California, the prevalence of tuberculosis decreasing more and more toward the north. The per cent was below the State average each year for every main and minor geographic division north of Tehachapi, being lowest of all for the interior counties of Northern California, 9.8 in 1907 and 11.3 in 1906.

The per cents are somewhat less for the metropolitan area comprising San Francisco and the other bay counties, 12.5 in 1907 and 11.7 in 1906, than for the rural counties north of Tehachapi, 12.7 and 13.8, respectively. In the city and county of San Francisco the per cent of deaths from tuberculosis was only 12.2 for 1907 and 11.3 for 1906.

Length of Residence.—The heavy mortality from tuberculosis in California is due largely to the immigration of people so badly afflicted with this disease that they can not recover, even under the most favorable climatic conditions, though they may lengthen their lives somewhat by coming to this land of sunshine. For it appears that many who died of tuberculosis in California had been residents of the Golden State for only a short time. This is shown for the several geographic divisions in 1907 and 1906 in the following table, giving numbers and per cents by length of residence:

TABLE 9.—*Deaths from Tuberculosis classified by Length of Residence in California, with Per Cents, for Geographic Divisions: 1907 and 1906.*

GEOGRAPHIC DIVISION.	Total	Length of Residence.					Per Cent.				
		Under 1 Year	1 to 9 Years	10 Years and Over	Life	Unknown	Under 1 Year	1 to 9 Years	10 Years and Over	Life	Unknown
1907.											
THE STATE	4,607	457	1,030	1,184	1,319	617	9.9	22.4	25.7	28.6	13.4
Northern California	434	16	35	148	156	79	3.7	8.1	34.1	35.9	18.2
Coast counties	219	5	12	76	89	37	2.3	5.5	34.7	40.6	16.9
Interior counties	215	11	23	72	67	42	5.1	10.7	33.5	31.2	19.5
Central California	2,343	104	300	700	892	347	4.4	12.8	29.9	38.1	14.8
San Francisco	802	35	87	209	326	145	4.4	10.8	26.1	40.6	18.1
Other bay counties	577	18	70	207	217	65	3.1	12.1	35.9	37.6	11.3
Coast counties	277	12	29	85	135	16	4.3	10.5	30.7	48.7	5.8
Interior counties	687	39	114	199	214	121	5.7	16.6	29.0	31.1	17.6
Southern California	1,830	337	695	336	271	191	18.4	38.0	18.4	14.8	10.4
Los Angeles	1,286	227	508	238	165	148	17.7	39.5	18.5	12.8	11.5
Other counties	544	110	187	98	106	43	20.2	34.4	18.0	19.5	7.9
Northern and Central California	2,777	120	335	848	1,048	426	4.3	12.1	30.5	37.7	15.4
Coast counties	1,875	70	198	577	767	263	3.7	10.6	30.8	40.9	14.0
Interior counties	902	50	137	271	281	163	5.5	15.2	30.0	31.2	18.1
Metropolitan area	1,379	53	157	416	543	210	3.8	11.4	30.2	39.4	15.2
Rural counties	1,398	67	178	432	505	216	4.8	12.7	30.9	36.1	15.5
1906.											
THE STATE	4,437	555	917	1,182	1,284	499	12.5	20.7	26.6	28.9	11.3
Northern California	426	16	47	142	160	61	3.8	11.0	33.3	37.6	14.3
Coast counties	210	4	27	69	83	27	1.9	12.9	32.8	39.5	12.9
Interior counties	216	12	20	73	77	34	5.6	9.3	33.8	35.6	15.7
Central California	2,269	97	287	696	864	325	4.3	12.6	30.7	38.1	14.3
San Francisco	809	21	75	224	341	148	2.6	9.3	27.7	42.1	18.3
Other bay counties	488	17	72	178	169	52	3.5	14.7	36.5	34.6	10.7
Coast counties	322	23	46	85	147	21	7.1	14.3	26.4	45.7	6.5
Interior counties	650	36	94	209	207	104	5.5	14.5	32.2	31.8	16.0
Southern California	1,742	442	583	344	260	113	25.4	33.5	19.7	14.9	6.5
Los Angeles	1,161	286	425	227	149	74	24.6	36.6	19.6	12.8	6.4
Other counties	581	156	158	117	111	39	26.9	27.2	20.1	19.1	6.7
Northern and Central California	2,695	113	334	838	1,024	386	4.2	12.4	31.1	38.0	14.3
Coast counties	1,829	65	220	556	740	248	3.5	12.0	30.4	40.5	13.6
Interior counties	866	48	114	282	284	138	5.5	13.2	32.6	32.8	15.9
Metropolitan area	1,297	38	147	402	510	200	2.9	11.4	31.0	39.3	15.4
Rural counties	1,398	75	187	436	514	186	5.3	13.4	31.2	36.8	13.3

It appears from the table that the per cent of tuberculosis victims in California who were natives of the State, having been here for life, was only 28.6 for 1907 and 28.9 for 1906. The per cent born elsewhere, but who were residents of 10 years' standing, was 25.7 for 1907 and 26.6 for 1906, while the per cents for those who had lived in California only from 1 to 9 years were 22.4 and 20.7 for 1907 and 1906, respectively. In 1907 9.9 per cent, and in 1906 no less than 12.5 per cent, of all the deaths from tuberculosis were of persons who had been in the State less than a year. The length of residence was unknown for 13.4 per cent of the tuberculosis victims in 1907 and for 11.3 per cent in 1906.

The per cent for natives of the State was 38.1 for Central California each year, and for Northern California 35.9 in 1907 and 37.6 in 1906. The per cents were respectively 37.7 and 38.0 for the counties north of Tehachapi against only 14.8 and 14.9 for those to the south. The per cent of tuberculosis victims born in the State was 39.4 for the metropolitan area in 1907 and 39.3 in 1906, as compared with, respectively, 36.1 and 36.8 for the rural counties north of Tehachapi.

The deaths from tuberculosis among residents of 10 years' standing were 34.1 and 33.3 per cent for Northern California and 29.9 and 30.7 for Central California in 1907 and 1906, respectively. For Northern and Central California together the per cents were 30.5 and 31.1 against only 18.4 and 19.7 for Southern California. North of Tehachapi the per cents were respectively 30.2 and 31.0 for the metropolitan area, as compared with 30.9 and 31.2 for the rural counties.

In 1907 altogether 32.3 per cent of the deaths occurred among residents of less than 10 years' standing, 22.4 per cent having lived here from 1 to 9 years and 9.9 per cent under 1 year. Similarly, in 1906 20.7 per cent had been here from 1 to 9 years and 12.5 per cent under 1 year, or altogether 33.2 per cent had resided in California less than 10 years. The per cents for residents of less than 10 years' standing are above the State averages only for Southern California, 56.4 in 1907 and 58.9 in 1906. The per cents were 57.2 and 61.2 for Los Angeles and 54.6 and 54.1 for the other counties south of Tehachapi in 1907 and 1906, respectively. On the other hand, the corresponding per cents were only 16.4 and 16.6 for the counties north of Tehachapi, being 17.2 and 16.9 for Central California, and 11.8 and 14.8 for Northern California. The per cent of deaths among persons who had lived in California less than 10 years was 15.2 for the metropolitan area in 1907 and 14.3 in 1906, as compared with, respectively, 17.5 and 18.7 for the rural counties north of Tehachapi.

It seems, therefore, that in Southern California, where over one fifth of all deaths are from tuberculosis, that nearly three fifths of these deaths occur among persons who had been in the State less than 10 years. In fact, about one fifth of all the tuberculosis victims south of Tehachapi had resided in California less than a year, the per cent being 18.4 for 1907 and 25.4 for 1906. The per cents were 17.7 and 24.6 for Los Angeles and 20.2 and 26.9 for the other counties in 1907 and 1906, respectively.

Southern California.—Moreover, many who died of tuberculosis in Southern California had lived in the State only a few months. This is shown clearly in the following table giving numbers and per cents by length of residence in months for Southern California in 1907 and 1906:

TABLE 10.—*Deaths from Tuberculosis classified by Length of Residence (in Months), with Per Cents, for Southern California: 1907 and 1906.*

GEOGRAPHIC DIVISION.	Length of Residence.									
	Total Under 1 Year.		Under 1 Month.		1 to 2 Months.		3 to 5 Months.		6 to 11 Months.	
	1907.	1906.	1907.	1906.	1907.	1906.	1907.	1906.	1907.	1906.
NUMBERS.										
Southern California	337	442	43	59	97	100	92	120	105	163
Los Angeles	227	286	29	37	72	60	55	79	71	110
Other counties	110	156	14	22	25	40	37	41	34	53
PER CENTS.										
Southern California	18.4	25.4	2.4	3.4	5.3	5.7	5.0	6.9	5.7	9.4
Los Angeles	17.7	24.6	2.3	3.2	5.6	5.1	4.3	6.8	5.5	9.5
Other counties	20.2	26.9	2.6	3.8	4.6	6.9	6.8	7.1	6.2	9.1

The table shows that of all who died of tuberculosis in Southern California in 1907, 2.4 per cent had been in the State less than a month, altogether 7.7 per cent less than three months, and altogether 12.7 per cent less than six months. In 1906 3.4 per cent had lived here under a month, altogether 9.1 per cent under three months, and altogether 16.0 per cent under six months. Of all the tuberculosis victims in Los Angeles in 1907 12.2 per cent, and in 1906 15.1 per cent, had resided in California less than half a year. The corresponding per cents for the other counties south of Tehachapi are 14.0 for 1907 and 17.8 for 1906.

Conclusion.—These figures give only a minimum statement of the extent to which the general death-rate of California is swollen by the deaths of persons who were stricken with tuberculosis elsewhere, and who simply came here in the hope of recovering, or with the expectation of at least lengthening their lives in the glorious climate of the Golden State. The statistics cover only the deaths that occur among these recent residents, in many cases quite soon after their arrival in this land of sunshine. No data are available to tell what proportion of deaths from tuberculosis among native Californians and old-time residents are directly due to imported infection by the presence here of sick people from other places. It is quite evident, however, that the death-rate of California is swollen somewhat by the unhealthfulness, not of this State, but of other states, being increased, in fact, by the wide fame of California as a curative health resort. For the principal cause of death the State is one which finds most of its victims among newcomers seeking restored health and finding longer, happier life in the balmy atmosphere of California.

DEATHS BY SEX, RACE, NATIVITY, AND AGE PERIODS: 1907 AND 1906.

Sex.—The proportion of the sexes among decedents is given in the following table for the several geographic divisions in 1907 and 1906, both numbers and per cents being shown:

TABLE 11.—*Deaths classified by Sex, with Per Cents, for Geographic Divisions: 1907 and 1906.*

GEOGRAPHIC DIVISION.	Deaths.						Per Cent Male.		Per Cent Female.	
	Total.		Male.		Female.					
	1907.	1906.	1907.	1906.	1907.	1906.	1907.	1906.	1907.	1906.
THE STATE	31,095	29,303	19,666	18,166	11,429	11,137	63.2	62.0	36.8	38.0
Northern California	3,944	3,528	2,729	2,349	1,215	1,179	69.2	66.6	30.8	33.4
Coast counties	1,761	1,614	1,159	1,047	602	567	65.8	64.9	34.2	35.1
Interior counties	2,183	1,914	1,570	1,302	613	612	71.9	68.0	28.1	32.0
Central California	18,063	17,692	11,447	11,035	6,616	6,657	63.4	62.4	36.6	37.6
San Francisco	6,575	7,151	4,166	4,496	2,409	2,655	63.4	62.9	36.6	37.1
Other bay counties	4,426	3,911	2,676	2,309	1,750	1,602	60.5	59.0	39.5	41.0
Coast counties	2,121	2,223	1,282	1,347	839	876	60.4	60.6	39.6	39.4
Interior counties	4,941	4,407	3,323	2,883	1,618	1,524	67.3	65.4	32.7	34 6
Southern California	9,088	8,083	5,490	4,782	3,598	3,301	60.4	59.2	39.6	40.8
Los Angeles	6,346	5,471	3,785	3,162	2,561	2,309	59.6	57.8	40.4	42.2
Other counties	2,742	2,612	1,705	1,620	1,037	992	62.2	62.0	37.8	38.0
Northern and Central California	22,007	21,220	14,176	13,384	7,831	7,836	64.4	63.1	35.6	36.9
Coast counties	14,883	14,899	9,283	9,199	5,600	5,700	62.4	61.7	37.6	38.3
Interior counties	7,124	6,321	4,893	4,185	2,231	2,136	68.7	66.2	31.3	33.8
Metropolitan area	11,001	11,062	6,842	6,805	4,159	4,257	62.2	61.5	37.8	38.5
Rural counties	11,006	10,158	7,334	6,579	3,672	3,579	66.6	64.	33.4	35.2

It appears from this table that of the 31,095 persons who died in California in 1907, 19,666, or 63.2 per cent, were male, and 11,429, or 36.8 per cent, were female, and that among the 29,303 decedents in 1906, the males were 18,166, or 62.0 per cent, and the females 11,137, or 38.0 per cent. There was an increase of 1.2 in the per cent male among decedents in the State as a whole, and there were increases in the per cent male for all main and minor geographic divisions except only the coast counties of Central California.

Each year the per cent male was highest for Northern California, 69.2 in 1907 and 66.6 in 1906, and next in Central California, 63.4 and 62.4, the per cents being 64.4 and 63.1 for Northern and Central California together, against only 60.4 and 59.2 for Southern California. The per cents male were highest among minor geographic divisions for the interior counties of Northern California, 71.9 and 68.0; next for the interior counties of Central California, 67.3 and 65.4; next for the coast counties of Northern California, 65.8 and 64.9; and next for San Francisco, 63.4 and 62.9. The per cents were below the State averages of 63.2 and 62.0 for the remaining minor geographic divisions, being lowest of all for Los Angeles, 59.6 in 1907 and 57.8 in 1906.

The per cents male were less each year for the metropolitan area, comprising San Francisco and the other bay counties (62.2 and 61.5) than for the rural counties north of Tehachapi (66.6 and 64.8).

Sex and Cause of Death.—The following table shows for California as a whole in both 1907 and 1906, the deaths from certain principal causes classified by sex, with the per cents male and female:

TABLE 12.—*Deaths from Certain Principal Causes classified by Sex, with Per Cents, for California: 1907 and 1906.*

CAUSE OF DEATH.	Deaths.						Per Cent Male.		Per Cent Female.	
	Total.		Male.		Female.					
	1907.	1906.	1907.	1906.	1907.	1906.	1907.	1906.	1907.	1906.
ALL CAUSES	31,095	29,303	19,666	18,166	11,429	11,137	63.2	62.0	36.8	38.0
Typhoid fever	558	657	394	450	164	207	70.6	68.5	29.4	31.5
Malarial fever	70	111	42	64	28	47	60.0	57.7	40.0	42.3
Smallpox	6	36	5	28	1	8	83.3	77.8	16.7	22.2
Measles	189	169	108	93	81	76	57.1	55.0	42.9	45.0
Scarlet fever	72	52	29	25	43	27	40.3	48.1	59.7	51.9
Whooping-cough	173	122	71	55	102	67	41.0	45.1	59.0	54.9
Diphtheria and croup	380	244	212	134	168	110	55.8	54.9	44.2	45.1
Influenza	114	196	62	104	52	92	54.4	53.1	45.6	46.9
Plague	82	......	57	....	25	......	69.5	.....	30.5	.. .
Other epidemic diseases	121	174	78	101	43	73	64.5	58.0	35.5	42.0
Tuberculosis of lungs	4,040	3,861	2,561	2,461	1,479	1,400	63.4	63.7	36.6	36.3
Tuberculosis of other organs	567	576	332	325	235	251	58.6	56.4	41.4	43.6
Cancer	1,590	1,502	781	673	809	829	49.1	44.8	50.9	56.2
Other general diseases	1,095	1,016	713	632	382	384	65.1	62.2	34.9	37.8
Meningitis	657	466	402	263	255	203	61.2	56.4	38.8	43.6
Other diseases of nervous system	2,403	2,297	1,489	1,384	914	913	62.0	60.3	38.0	39.7
Diseases of circulatory system	4,362	3,766	2,795	2,424	1,567	1,342	64.1	64.4	35.9	35.6
Pneumonia and broncho-pneumonia	2,678	2,431	1,777	1,523	901	908	66.4	62.6	33.6	37.4
Other diseases of respiratory system	910	756	545	441	365	315	59.9	58.3	40.1	41.7
Diarrhea and enteritis, under 2 years	899	930	519	501	380	429	57.7	53.9	42.3	46.1
Diarrhea and enteritis, 2 years and over	288	338	155	181	133	157	53.8	53.5	46.2	46.5
Other diseases of digestive system	1,588	1,410	956	841	632	569	60.2	59.6	39.8	40.4
Bright's disease and nephritis	1,787	1,622	1,162	1,019	625	603	65.0	62.8	35.0	37.2
Childbirth	265	266	......	......	265	266	.....	100.0	.....	100.0
Diseases of early infancy	1,031	946	579	553	452	393	56.2	58.5	43.8	41.5
Suicide	608	501	491	412	117	89	80.8	82.2	19.2	17.8
Earthquake and fire	......	750	......	529	......	221	.....	70.5	.....	29.5
Other violence	2,711	2,152	2,291	1,806	420	346	84.5	83.9	15.5	16.1
All other causes	1,851	1,956	1,060	1,144	791	812	57.3	58.5	42.7	41.5

This table shows that in both 1907 and 1906 the per cents male were highest for deaths from the following important causes: miscellaneous violence, 84.5 and 83.9; suicide, 80.8 and 82.2; earthquake and fire, 70.5 in 1906 alone; plague, 69.5 in 1907 alone; typhoid fever, 70.6 in 1907 and 68.5 in 1906; pneumonia and broncho-pneumonia, 66.4 and 62.6; diseases of the circulatory system, 64.1 and 64.4; Bright's disease and nephritis, 65.0 and 62.8; and tuberculosis of the lungs, 63.4 and 63.7.

On the other hand, the per cent female, except of course for deaths from childbirth, was notably high only in the following cases: cancer, 50.9 and 55.2; whooping-cough, 59.0 and 54.9; and scarlet fever, 59.7 and 51.9 in 1907 and 1906, respectively. For all other diseases the male decedents outnumbered the female, in some cases greatly.

Race.—The race distribution of persons dying in the several geographic divisions in 1907 and 1906 is given in the following table, together with the per cent white among decedents:

TABLE 13.—*Deaths classified by Race, with Per Cent White, for Geographic Divisions: 1907 and 1906.*

GEOGRAPHIC DIVISION.	Deaths.						Per Cent White.
	Total.	White.	Negro.	Indian.	Chinese.	Japanese.	
1907.							
THE STATE	31,095	29,339	449	120	670	517	94.3
Northern California	3,944	3,717	30	63	102	32	94.2
Coast counties	1,761	1,695	6	30	22	8	96.3
Interior counties	2,183	2,022	24	33	80	24	92.6
Central California	18,063	16,944	220	36	511	352	93.8
San Francisco	6,575	6,375	49	--------	88	63	97.0
Other bay counties	4,426	4,056	90	6	214	60	91.6
Coast counties	2,121	2,000	13	5	39	64	94.3
Interior counties	4,941	4,513	68	25	170	165	91.3
Southern California	9,088	8,678	199	21	57	133	95.5
Los Angeles	6,346	6,025	170	5	42	104	94.9
Other counties	2,742	2,653	29	16	15	29	96.8
Northern and Central California	22,007	20,661	250	99	613	384	93.9
Coast counties	14,883	14,126	158	41	363	195	94.9
Interior counties	7,124	6,535	92	58	250	189	91.7
Metropolitan area	11,001	10,431	139	6	302	123	94.8
Rural counties	11,006	10,230	111	93	311	261	92.9
1906.							
THE STATE	29,303	27,704	428	117	670	384	94.5
Northern California	3,528	3,305	30	70	95	28	93.7
Coast counties	1,614	1,527	9	43	21	14	94.6
Interior counties	1,914	1,778	21	27	74	14	92.9
Central California	17,692	16,676	203	22	506	285	94.3
San Francisco	7,151	6,864	54	2	156	75	96.0
Other bay counties	3,911	3,681	70	5	128	27	94.1
Coast counties	2,223	2,111	14	4	48	46	95.0
Interior counties	4,407	4,020	65	11	174	137	91.2
Southern California	8,083	7,723	195	25	69	71	95.5
Los Angeles	5,471	5,203	168	--------	43	57	95.1
Other counties	2,612	2,520	27	25	26	14	96.5
Northern and Central California	21,220	19,981	233	92	601	313	94.2
Coast counties	14,899	14,183	147	54	353	162	95.2
Interior counties	6,321	5,798	86	38	248	151	91.7
Metropolitan area	11,062	10,545	124	7	284	102	95.3
Rural counties	10,158	9,436	109	85	317	211	92.9

This table shows that in 1907 the white decedents numbered 29,339, or 94.3 per cent of all; the Chinese, 670; the Japanese, 517; the negroes, 449; and the Indians, 120. In 1906 the figures were: white, 27,704, or 94.5 per cent of all; Chinese, 670; negro, 428; Japanese, 384; and Indian, 117. The negro decedents outnumbered the Japanese in 1906, but in 1907 the Japanese outnumbered the negroes.

The per cent white was substantially the same in 1907 as in 1906, 94.3 against 94.5, for the State as a whole. The per cent white was 95.5 each year for Southern California, as compared with 93.9 for Northern and Central California in 1907, and 94.2 in 1906, the per cents for Central California being respectively 93.8 and 94.3 and for Northern California, 94.2 and 93.7.

Among minor geographic divisions, the per cents white were above or equal to the State averages (94.3 in 1907 and 94.5 in 1906) in the following cases: San Francisco, 97.0 and 96.0; Southern California, except Los Angeles, 96.8 and 96.5; Los Angeles alone, 94.9 and 95.1; coast counties of Northern California, 96.3 and 94.6; and coast counties of Central California, 94.3 and 95.0.

The per cent white was greater each year for the metropolitan area than for the rural counties north of Tehachapi, the per cents being 94.8 in 1907 and 95.3 in 1906 for the urban territory, against 92.9 for the country districts both years.

The number of Chinese decedents was notably great in 1907 for the bay counties other than San Francisco and for the interior counties of Central California, and in 1906 for these same groups and for San Francisco as well. The number of negroes was particularly great only for Los Angeles each year. The Japanese decedents were quite numerous in the interior counties of Central California both years, and in Los Angeles also in 1907. Over half the Indian deaths each year were in Northern California.

Race and Cause of Death.—The following table shows for California in 1907 and 1906 the deaths from certain principal causes classified by race, as well as the per cent white in each case:

TABLE 14.—*Deaths from Certain Principal Causes classified by Race, with Per Cent White, for California: 1907 and 1906.*

CAUSE OF DEATH.	Deaths.						Per Cent White.
	Total.	White.	Negro.	Indian.	Chinese.	Japanese.	
1907.							
ALL CAUSES	31,095	29,339	449	120	670	517	94.3
Typhoid fever	558	488	7	2	3	58	87.5
Malarial fever	70	66	-------	1	1	2	94.3
Smallpox	6	5	1	-------	-------	-------	83.3
Measles	189	186	1	2	-------	-------	98.4
Scarlet fever	72	72	-------	-------	-------	-------	100.0
Whooping-cough	173	167	3	3	-------	-------	96.5
Diphtheria and croup	380	370	-------	-------	5	5	97.4
Influenza	114	112	1	-------	1	-------	98.2
Plague	82	70	1	-------	7	4	85.4
Other epidemic diseases	121	96	2	1	9	13	79.3
Tuberculosis of lungs	4,040	3,674	89	27	197	53	90.9
Tuberculosis of other organs	567	515	14	3	15	20	90.8
Cancer	1,590	1,546	12	1	19	12	97.2
Other general diseases	1,095	1,039	15	4	29	8	94.9
Meningitis	657	602	10	3	3	39	91.6
Other diseases of nervous system	2,403	2,319	37	2	33	12	96.5
Diseases of circulatory system	4,362	4,187	57	7	87	24	96.0
Pneumonia and broncho-pneumonia	2,678	2,515	44	11	67	41	93.9
Other diseases of respiratory system	910	869	10	1	16	14	95.5
Diarrhea and enteritis, under 2 years	899	854	7	6	7	25	95.0
Diarrhea and enteritis, 2 years and over	288	268	2	2	10	6	93.1
Other diseases of digestive system	1,588	1,495	22	4	34	33	94.1
Bright's disease and nephritis	1,787	1,728	24	3	12	20	96.7
Childbirth	265	255	2	-------	3	5	96.2
Diseases of early infancy	1,031	986	10	3	7	25	95.6
Suicide	608	578	5	1	15	9	95.1
Other violence	2,711	2,505	49	22	54	81	92.4
All other causes	1,851	1,772	24	11	36	8	95.7

TABLE 14.—*Deaths from Certain Principal Causes classified by Race, with Per Cent White, for California: 1907 and 1906—Continued.*

CAUSE OF DEATH.	Deaths.						Per Cent White.
	Total.	White.	Negro.	Indian.	Chinese.	Japanese	
1906.							
ALL CAUSES	29,303	27,704	428	117	670	384	94.5
Typhoid fever	657	594	7	1	11	44	90.4
Malarial fever	111	100		2	5	4	90.1
Smallpox	36	36					100.0
Measles	169	163	1	5			96.5
Scarlet fever	52	52					100.0
Whooping-cough	122	116	2	3		1	95.1
Diphtheria and croup	244	235	2		6	1	96.3
Influenza	196	186	3	1	2	4	94.9
Other epidemic diseases	174	154	6		10	4	88.5
Tuberculosis of lungs	3,861	3,503	93	28	179	58	90.7
Tuberculosis of other organs	576	513	12	5	16	30	89.1
Cancer	1,502	1,462	13	2	18	7	97.3
Other general diseases	1,016	963	12	3	29	9	94.8
Meningitis	466	440	3		7	16	94.4
Other diseases of nervous system	2,297	2,231	31	5	24	6	97.1
Diseases of circulatory system	3,766	3,612	51	4	81	18	95.9
Pneumonia and broncho-pneumonia	2,431	2,307	37	7	57	23	94.9
Other diseases of respiratory system	756	727	8	2	13	6	96.2
Diarrhea and enteritis, under 2 years	930	899	8	4	5	14	96.7
Diarrhea and enteritis, 2 years and over	338	308	9	1	14	6	91.1
Other diseases of digestive system	1,410	1,324	16	5	37	28	93.9
Bright's disease and nephritis	1,622	1,549	32		34	7	95.5
Childbirth	266	248	3	4	3	8	93.2
Diseases of early infancy	946	911	14	1	12	8	96.3
Suicide	501	474	4		13	10	94.6
Earthquake and fire	750	711			31	8	94.8
Other violence	2,152	2,025	30	23	21	53	94.1
All other causes	1,956	1,861	31	11	42	11	95.1

The per cents white were above the general averages of 94.3 and 94.5 for 1907 and 1906 for deaths from the following important causes: Scarlet fever, 100.0 per cent each year; measles, 98.4 in 1907 and 96.5 in 1906; diphtheria and croup, 97.4 and 96.3; whooping-cough, 96.5 and 95.1; cancer, 97.2 and 97.3; diseases of the nervous system other than meningitis, 96.5 and 97.1; diseases of the circulatory system, 96.0 and 95.9; diarrhea and enteritis, under 2 years, 95.0 and 96.7; Bright's disease and nephritis, 96.7 and 95.5; diseases of early infancy, 95.6 and 96.3; and suicide, 95.1 and 94.6.

The table shows, however, that the per cents white are very low indeed for typhoid fever, 87.5 in 1907 and 90.4 in 1906, as well as for tuberculosis of the lungs, 90.9 and 90.7, and tuberculosis of other organs, 90.8 and 89.1. From further analysis of the figures in the table it appears that the proportion of Caucasians among all dying from typhoid fever is relatively small, because many deaths from this disease occur among the Japanese, and that the proportion of Caucasians among tuberculous victims is relatively small, because the "great white plague" is especially fatal among Chinese and negroes.

Thus, the per cents Japanese among all dying from typhoid fever were no less than 10.4 in 1907 (58 in 558) and 6.7 in 1906 (44 in 657), while the per cents Japanese among all decedents in the State were only 1.7 and 1.3, respectively. Likewise, the Chinese and negroes are strongly represented among the victims of tuberculosis in California, the Chinese who died from tuberculosis of the lungs numbering 197 in 1907 and 179 in 1906, and the negroes numbering 89 and 93, respectively. While the per cents Chinese were only 2.2 and 2.3 among all decedents in California in 1907 and 1906, the per cents Chinese were no less than 4.9 and 4.7 for deaths from tuberculosis of the lungs, and 2.7 and 2.8 for tuberculosis of other organs. Similarly, while the per cents negro were only 1.4 and 1.5 among all decedents in 1907 and 1906, the per cents negro were 2.2 and 2.4 for pulmonary tuberculosis, and 2.5 and 2.1 for other forms of this disease.

Nativity of White Decedents.—In further analysis of deaths by race, the nativity of white decedents is worth considering. Accordingly, Table 15, on the opposite page, has been prepared classifying white decedents as born in California, born in other states, foreign born, or nativity unknown. The 1,319 of unknown nativity in 1906 include 355 victims of earthquake and fire in San Francisco and vicinity in April, 1906.

It appears from this table that of the 29,339 white decedents in 1907, 10,482, or 35.7 per cent, were born elsewhere in the United States than California; 9,396, or 32.0 per cent, were foreign born; 8,332, or 28.4 per cent, were born in California; and 1,129, or 3.9 per cent, were of unknown nativity. Of the 27,704 white decedents in 1906, those born in other states than California were 9,679, or 34.9 per cent; the foreign born were 8,840, or 31.9 per cent; those born in California were 7,866, or 28.4 per cent; and those of unknown nativity were 1,319, or 4.8 per cent. The per cent born in other states than California was 35.7 in 1907 and 34.9 in 1906, a rise of 0.8 in the per cent. The per cent of white decedents who were born in California was exactly the same each year, 28.4, and the per cent foreign born was substantially the same, 32.0 for 1907 and 31.9 for 1906, the per cent of unknown nativity being only 3.9 for 1907, as compared with 4.8 for 1906.

The proportion of California decedents born in other states is very high for the counties south of Tehachapi, especially Los Angeles, the per cents being 50.8 and 51.5 for Southern California in 1907 and 1906, respectively, and no less than 52.1 and 52.7 for Los Angeles alone. On the other hand, the per cents born in other states were only 29.4 and 28.5 for the counties north of Tehachapi, being 37.5 and 38.4 for Northern California, and merely 27.6 and 26.6 for Central California. The per cents born elsewhere in the United States than California were much less for the metropolitan area, 22.4 and 22.0, than for the rural counties of Northern and Central California, 36.6 in 1907 and 35.8 in 1906.

The proportion of foreign born decedents is particularly great only in Central California, where the per cent foreign born was 36.6 in 1907 and 36.5 in 1906, the per cents being only 29.5 each year for Northern California, and 24.2 in 1907 and 23.1 in 1906 for Southern California. For Northern and Central California together, the per cent foreign born was 35.3 each year, the per cents foreign born being no less than 41.1 in 1907 and 39.7 in 1906 for the urban territory, as compared with 29.4 and 30.4 for the country districts. The per cent of foreign born decedents in San Francisco was as great as 44.0 in 1907 and 41.3 in 1906.

TABLE 15.—*White Decedents classified by Nativity, with Per Cents, for Geographic Divisions: 1907 and 1906.*

GEOGRAPHIC DIVISION.	White Decedents.					Per Cent.			
	Total.	Born in California.	Born in Other States.	Foreign Born.	Unknown.	Born in California.	Born in Other States.	Foreign Born.	Unknown.
1907.									
THE STATE	29,339	8,332	10,482	9,396	1,129	28.4	35.7	32.0	3.9
Northern California	3,717	1,005	1,393	1,096	223	27.0	37.5	29.5	6.0
Coast counties	1,695	497	592	544	62	29.3	34.9	32.1	3.7
Interior counties	2,022	508	801	552	161	25.1	39.6	27.3	8.0
Central California	16,944	5,488	4,684	6,196	576	32.4	27.6	36.6	3.4
San Francisco	6,375	2,114	1,222	2,806	233	33.2	19.2	44.0	3.6
Other bay counties	4,056	1,366	1,114	1,478	98	33.7	27.5	36.4	2.4
Coast counties	2,000	655	715	601	29	32.8	35.8	30.0	1.4
Interior counties	4,513	1,353	1,633	1,311	216	30.0	36.2	29.0	4.8
Southern California	8,678	1,839	4,405	2,104	330	21.2	50.8	24.2	3.8
Los Angeles	6,025	1,230	3,141	1,434	220	20.4	52.1	23.8	3.7
Other counties	2,653	609	1,264	670	110	23.0	47.6	25.3	4.1
Northern and Central California	20,661	6,493	6,077	7,292	799	31.4	29.4	35.3	3.9
Coast counties	14,126	4,632	3,643	5,429	422	32.8	25.8	38.4	3.0
Interior counties	6,535	1,861	2,434	1,863	377	28.5	37.2	28.5	5.8
Metropolitan area	10,431	3,480	2,336	4,284	331	33.3	22.4	41.1	3.2
Rural counties	10,230	3,013	3,741	3,008	468	29.4	36.6	29.4	4.6
1906.									
THE STATE	27,704	7,866	9,679	8,840	1,319	28.4	34.9	31.9	4.8
Northern California	3,305	851	1,270	975	209	25.8	38.4	29.5	6.3
Coast counties	1,527	398	568	478	83	26.1	37.2	31.3	5.4
Interior counties	1,778	453	702	497	126	25.5	39.5	27.9	7.1
Central California	16,676	5,335	4,431	6,083	827	32.0	26.6	36.5	4.9
San Francisco	6,864	2,264	1,236	2,838	526	33.0	18.0	41.3	7.7
Other bay counties	3,681	1,169	1,088	1,347	77	31.8	29.5	36.6	2.1
Coast counties	2,111	668	701	683	59	31.6	33.2	32.4	2.8
Interior counties	4,020	1,234	1,406	1,215	165	30.7	35.0	30.2	4.1
Southern California	7,723	1,680	3,978	1,782	283	21.7	51.5	23.1	3.7
Los Angeles	5,203	1,087	2,745	1,175	196	20.9	52.7	22.6	3.8
Other counties	2,520	593	1,233	607	87	23.5	48.9	24.1	3.5
Northern and Central California	19,981	6,186	5,701	7,058	1,036	31.0	28.5	35.3	5.2
Coast counties	14,183	4,499	3,593	5,346	745	31.7	25.3	37.7	5.3
Interior counties	5,798	1,687	2,108	1,712	291	29.1	36.4	29.5	5.0
Metropolitan area	10,545	3,433	2,324	4,185	603	32.6	22.0	39.7	5.7
Rural counties	9,436	2,753	3,377	2,873	433	29.2	35.8	30.4	4.6

The per cent of native Californians among white decedents was greatest each year for Central California, 32.4 in 1907 and 32.0 in 1906, and next in Northern California, 27.0 and 25.8, the per cents being 31.4 and 31.0 for both these divisions together, in contrast with only 21.2 and 21.7 for Southern California. The per cents born in California were somewhat greater for the metropolitan area, 33.3 and 32.6, than for the rural counties north of Tehachapi, 29.4 and 29.2 in 1907 and 1906, respectively.

Nativity and Cause of Death.—The following table gives numbers and per cents showing the nativity of Caucasians dying from certain principal causes in California in 1907 and 1906:

TABLE 16.—*White Decedents Dying from Principal Causes classified by Nativity, with Per Cents, for California: 1907 and 1906.*

CAUSE OF DEATH.	White Decedents.					Per Cent.			
	Total	Born in California	Born in Other States	Foreign Born	Unknown	Born in California	Born in Other States	Foreign Born	Unknown
1907.									
ALL CAUSES	29,339	8,332	10,482	9,396	1,129	28.4	35.7	32.0	3.9
Typhoid fever	488	164	172	145	7	33.6	35.3	29.7	1.4
Malarial fever	66	18	27	16	5	27.3	40.9	24.2	7.6
Smallpox	5	2	------	3	------	40.0	------	60.0	------
Measles	186	143	27	16	------	76.9	14.5	8.6	------
Scarlet fever	72	55	10	7	------	76.4	13.9	9.7	------
Whooping-cough	167	151	11	4	1	90.4	6.6	2.4	0.6
Diphtheria and croup	370	279	71	17	3	75.4	19.2	4.6	0.8
Influenza	112	9	53	50	------	8.0	47.3	44.7	------
Plague	70	22	9	37	2	31.4	12.9	52.9	2.8
Other epidemic diseases	96	23	39	32	2	24.0	40.6	33.3	2.1
Tuberculosis of lungs	3,674	994	1,450	1,145	85	27.0	39.5	31.2	2.3
Tuberculosis of other organs	515	265	133	111	6	51.5	25.8	21.5	1.2
Cancer	1,546	145	677	703	21	9.4	43.8	45.5	1.3
Other general diseases	1,039	229	386	367	57	22.0	37.2	35.3	5.5
Meningitis	602	369	140	86	7	61.3	23.2	14.3	1.2
Other diseases of nervous system	2,319	319	1,138	790	72	13.7	49.1	34.1	3.1
Diseases of circulatory system	4,187	337	1,891	1,814	145	8.0	45.2	43.3	3.5
Pneumonia and broncho-pneumonia	2,515	787	810	810	108	31.3	32.2	32.2	4.3
Other diseases of respiratory system	869	206	303	333	27	23.7	34.9	38.3	3.1
Diarrhea and enteritis, under 2 years	854	803	29	22	------	94.0	3.4	2.6	------
Diarrhea and enteritis, 2 years and over	268	90	100	72	6	33.6	37.3	26.9	2.2
Other diseases of digestive system	1,495	368	566	514	47	24.6	37.9	34.4	3.1
Bright's disease and nephritis	1,728	254	802	636	36	14.7	46.4	36.8	2.1
Childbirth	255	106	88	60	1	41.6	34.5	23.5	0.4
Diseases of early infancy	986	986	------	------	------	100.0	------	------	------
Suicide	578	106	201	176	95	18.3	34.8	30.5	16.4
Other violence	2,505	627	696	845	337	25.0	27.8	33.7	13.5
All other causes	1,772	475	653	585	59	26.8	36.9	33.0	3.3
1906.									
ALL CAUSES	27,704	7,866	9,679	8,840	1,319	28.4	34.9	31.9	4.8
Typhoid fever	594	244	166	171	13	41.1	27.9	28.8	2.2
Malarial fever	100	31	42	27	------	31.0	42.0	27.0	------
Smallpox	36	10	6	14	6	27.8	16.7	38.9	16.6
Measles	163	129	22	11	1	79.1	13.5	6.8	0.6
Scarlet fever	52	36	10	3	3	69.2	19.2	5.8	5.8
Whooping-cough	116	104	12	------	------	89.7	10.3	------	------
Diphtheria and croup	235	159	63	13	------	67.7	26.8	5.5	------
Influenza	186	22	97	64	3	11.8	52.2	34.4	1.6
Other epidemic diseases	154	51	48	51	4	33.1	31.2	33.1	2.6
Tuberculosis of lungs	3,503	930	1,468	1,031	74	26.6	41.9	29.4	2.1
Tuberculosis of other organs	513	280	144	81	8	54.6	28.1	15.8	1.5
Cancer	1,462	119	672	649	22	8.1	46.0	44.4	1.5
Other general diseases	963	209	409	298	47	21.7	42.5	30.9	4.9
Meningitis	440	309	88	37	6	70.2	20.0	8.4	1.4
Other diseases of nervous system	2,231	325	1,003	836	67	14.6	44.9	37.5	3.0
Diseases of circulatory system	3,612	294	1,570	1,620	128	8.1	43.5	44.9	3.5
Pneumonia and broncho-pneumonia	2,307	743	697	779	88	32.2	30.2	33.8	3.8
Other diseases of respiratory system	727	192	238	280	17	26.4	32.8	38.5	2.3
Diarrhea and enteritis, under 2 years	899	866	27	6	------	96.3	3.0	0.7	------
Diarrhea and enteritis, 2 years and over	308	95	105	103	5	30.9	34.1	33.4	1.6
Other diseases of digestive system	1,324	322	511	471	20	24.3	38.6	35.6	1.5
Bright's disease and nephritis	1,549	187	703	612	47	12.1	45.4	39.5	3.0
Childbirth	248	96	80	72	------	38.7	32.3	29.0	------
Diseases of early infancy	911	909	2	------	------	99.8	0.2	------	------
Suicide	474	65	136	188	85	13.7	28.7	39.7	17.9
Earthquake and fire	711	122	89	145	355	17.2	12.5	20.4	49.9
Other violence	2,025	572	588	613	252	28.3	29.0	30.3	12.4
All other causes	1,861	445	683	665	68	23.9	36.7	35.7	3.7

The per cents born in California were above the general average of 28.4 each year for deaths from the following important causes: early infancy, 100.0 in 1907 and 99.8 in 1906; diarrhea and enteritis, under 2 years, 94.0 and 96.3; whooping-cough, 90.4 and 89.7; measles, 76.9 and 79.1; scarlet fever, 76.4 and 69.2; diphtheria and croup, 75.4 and 67.7; meningitis, 61.3 and 70.2; tuberculosis other than pulmonary, 51.5 and 54.6; childbirth, 41.6 and 38.7; typhoid fever, 33.6 and 41.1; diarrhea and enteritis, 2 years and over, 33.6 and 30.9; pneumonia and broncho-pneumonia, 31.3 and 32.2; and plague, 31.4 in 1907 alone.

The per cents born in other states were above the general averages of 35.7 and 34.9 for 1907 and 1906 for deaths from the following notable causes: diseases of the nervous system other than meningitis, 49.1 and 44.9; Bright's disease and nephritis, 46.4 and 45.4; diseases of the circulatory system, 45.2 and 43.5; cancer, 43.8 and 46.0; tuberculosis of the lungs, 39.5 and 41.6; and diseases of the digestive system other than diarrhea, 37.9 and 38.6.

The per cents foreign born were above the general averages of 32.0 and 31.9 in 1907 and 1906 for deaths from the following causes: plague, 52.9 in 1907 alone; cancer, 45.5 in 1907 and 44.4 in 1906; diseases of the circulatory system, 43.3 and 44.9; diseases of the respiratory system other than pneumonia, 38.3 and 38.5; Bright's disease and nephritis, 36.8 and 39.5; diseases of the nervous system other than meningitis, 34.1 and 37.5; diseases of the digestive system other than diarrhea, 34.4 and 35.6; and pneumonia and broncho-pneumonia, 32.2 and 33.8.

The nativity was unknown for 355, or 49.9 per cent of the 711 Caucasians killed by earthquake and fire in April, 1906. The per cents of unknown nativity are also very high for suicides, 16.4 in 1907 and 17.9 in 1906, as well as for deaths from other violence (drowning, accidental injuries, etc.), 13.5 and 12.4, respectively.

Age Periods.—The following table gives for the several geographic divisions in 1907 and 1906 the classification of decedents by selected age periods, representing in a rough way, infancy, childhood, youth, productive ages, and old age:

TABLE 17.—*Deaths classified by Age Periods, for Geographic Divisions: 1907 and 1906.*

GEOGRAPHIC DIVISION.	Deaths.	Under 1 Year.	1 to 4 Years.	5 to 14 Years.	15 to 64 Years.	65 Yrs. and Over.	Age Unknown.
1907.							
THE STATE	31,095	3,422	1,484	1,060	16,761	8,175	193
Northern California	3,944	289	162	136	2,020	1,284	53
Coast counties	1,761	149	81	70	864	581	16
Interior counties	2,183	140	81	66	1,156	703	37
Central California	18,063	2,138	895	622	9,684	4,627	97
San Francisco	6,575	848	329	197	3,760	1,421	20
Other bay counties	4,426	542	254	182	2,295	1,135	18
Coast counties	2,121	234	72	84	1.004	718	9
Interior counties	4,941	514	240	159	2,625	1,353	50
Southern California	9,088	995	427	302	5,057	2,264	43
Los Angeles	6,346	685	324	221	3,597	1,513	6
Other counties	2,742	310	103	81	1,460	751	37
Northern and Central California	22,007	2,427	1,057	758	11,704	5,911	150
Coast counties	14,883	1,773	736	533	7,923	3,855	63
Interior counties	7,124	654	321	225	3,781	2,056	87
Metropolitan area	11,001	1,390	583	379	6,055	2,556	38
Rural counties	11,006	1,037	474	379	5,649	3,355	112
1906.							
THE STATE	29,303	3,347	1,320	988	15,324	7,833	491
Northern California	3,528	262	125	125	1,708	1,240	68
Coast counties	1,614	105	62	62	802	549	34
Interior counties	1,924	157	63	63	906	691	34
Central California	17,692	2,173	823	575	9,058	4,681	382
San Francisco	7,151	934	344	200	3,750	1,627	296
Other bay counties	3,911	522	201	156	1,924	1,095	13
Coast counties	2,223	217	84	76	1,103	702	41
Interior counties	4,407	500	194	143	2,281	1,257	32
Southern California	8,083	912	372	288	4,558	1,912	41
Los Angeles	5,471	635	250	192	3,166	1,201	27
Other counties	2,612	277	122	96	1,392	711	14
Northern and Central California	21,220	2,435	948	700	10,766	5,921	450
Coast counties	14,899	1,778	691	494	7,579	3,973	384
Interior counties	6,321	657	257	206	3,187	1,948	66
Metropolitan area	11,062	1,456	545	356	5,674	2,722	309
Rural counties	10,158	979	403	344	5,092	3,199	141

This table shows that of the 31,095 deaths in 1907, 16,761 occurred at the productive ages from 15 to 64 years; 8,175 at the period of old age, 65 years and over; 3,422 in infancy, or the first year of life; 1,484 in childhood, 1 to 4 years; 1,060 in youth, 5 to 14 years; and 193 were of unknown age. Similarly, of the 29,303 deaths in 1906, 15,324 were at the productive ages; 7,833 in old age; 3,347 in infancy;

1.320 in childhood; 988 in youth; and 491 were unknown, this number including 302 victims of earthquake and fire in April, 1906.

To facilitate comparisons between geographic divisions, the absolute numbers in the preceding table have been reduced to per cents, as follows:

TABLE 18.—*Per Cent Distribution of Deaths, by Age Periods, for Geographic Divisions: 1907 and 1906.*

GEOGRAPHIC DIVISION.	Per Cent of Deaths.											
	Under 1 Year.		1 to 4 Years.		5 to 14 Years.		15 to 64 Years.		65 Years and Over.		Age Unknown.	
	1907.	1906.	1907.	1906.	1907.	1906.	1907.	1906.	1907.	1906.	1907.	1906.
THE STATE	11.0	11.4	4.8	4.5	3.4	3.4	53.9	52.3	26.3	26.7	0.6	1.7
Northern California	7.3	7.4	4.1	3.5	3.5	3.5	51.2	48.5	32.6	35.2	1.3	1.9
Coast counties	8.5	6.5	4.6	3.9	4.0	3.8	49.0	49.7	33.0	34.0	0.9	2.1
Interior counties	6.4	8.2	3.7	3.3	3.0	3.3	53.0	47.3	32.2	36.1	1.7	1.8
Central California	11.8	12.3	5.0	4.6	3.5	3.2	53.6	51.2	25.6	26.5	0.5	2.2
San Francisco	12.9	13.1	5.0	4.8	3.0	2.8	57.2	52.4	21.6	22.8	0.3	4.1
Other bay counties	12.3	13.4	5.7	5.1	4.1	4.0	51.9	49.2	25.6	28.0	0.4	0.3
Coast counties	11.0	9.8	3.4	3.8	4.0	3.4	47.3	49.6	33.9	31.6	0.4	1.8
Interior counties	10.4	11.4	4.9	4.4	3.2	3.2	53.1	51.8	27.4	28.5	1.0	0.7
Southern California	11.0	11.3	4.7	4.6	3.3	3.6	55.6	56.4	24.9	23.6	0.5	0.5
Los Angeles	10.8	11.6	5.1	4.6	3.5	3.5	56.7	57.9	23.8	21.9	0.1	0.5
Other counties	11.3	10.6	3.8	4.7	3.0	3.7	53.2	53.3	27.4	27.2	1.3	0.5
Northern and Central California	11.0	11.5	4.8	4.5	3.4	3.3	53.2	50.7	26.9	27.9	0.7	2.1
Coast counties	11.9	11.9	5.0	4.6	3.6	3.3	53.2	50.9	25.9	26.7	0.4	2.6
Interior counties	9.2	10.4	4.5	4.1	3.1	3.3	53.1	50.4	28.9	30.8	1.2	1.0
Metropolitan area	12.6	13.2	5.3	4.9	3.5	3.2	55.0	51.3	23.2	24.6	0.4	2.8
Rural counties	9.4	9.6	4.3	4.0	3.5	3.4	51.3	50.1	30.5	31.5	1.0	1.4

The per cent distribution shows that the deaths at the productive ages from 15 to 64 were 53.9 per cent of all in 1907 and 52.3 per cent in 1906; the deaths at the period of old age, 65 years and over, were 26.3 and 26.7 per cent, respectively; the deaths in infancy, or the first year of life, 11.0 and 11.4 per cent; the deaths in childhood, 1 to 4 years, 4.8 and 4.5 per cent; the deaths in youth, 5 to 14 years, 3.4 per cent each year; and the deaths of unknown age, 0.6 per cent in 1907 and 1.7 per cent in 1906.

The per cents of deaths occurring at the productive ages, from 15 to 64, were above the State averages of 53.9 for 1907 and 52.3 for 1906, only for Los Angeles, 56.7 and 57.9, for the other counties of Southern California, 53.2 and 53.3, and for San Francisco, 57.2 and 52.4. The per cents of deaths at the productive ages were 55.6 and 56.4 for the counties south of Tehachapi, as compared with only 53.2 and 50.7 for those to the north. The per cents were 55.0 and 51.3 for the metropolitan area, but only 51.3 and 50.1 for the rural counties north of Tehachapi.

The proportion of deaths at the period of old age, 65 years and over, was above the general average each year for the coast and interior counties of both Northern and Central California, being below the

State averages for San Francisco and the other bay counties as well as for Los Angeles and the other counties of Southern California. The per cents of deaths occurring at 65 years and over (26.3 and 26.7 for the State) were no less than 32.6 and 35.2 for Northern California, but only 25.6 and 26.5 for Central California and 24.9 and 23.6 for Southern California. The per cents for Northern and Central California together were 26.9 in 1907 and 27.9 in 1906, being only 23.2 and 24.6 for the urban territory, against no less than 30.5 and 31.5 for the country districts.

The proportion of deaths in infancy, or the first year of life, was particularly high each year only for Central California, especially for San Francisco and the other bay counties. While the per cents for the State were 11.0 and 11.4 in 1907 and 1906, the per cents for Central California were 11.8 and 12.3, being no less than 12.9 and 13.1 for the metropolis proper and 12.3 and 13.4 for the adjoining suburbs. The per cent of deaths in the first year of life was no less than 12.6 in 1907 and 13.2 in 1906 for the whole urban territory, as compared with only 9.4 and 9.6 for the rural counties north of Tehachapi. The proportion of deaths in infancy was lowest each year for Northern California, 7.3 per cent in 1907 and 7.4 per cent in 1906.

The proportion of deaths in childhood, 1 to 4 years, as in infancy, is notably great for the metropolitan area. While the per cents for the State were 4.8 and 4.5, the per cents for the metropolitan area were no less than 5.3 and 4.9, being 5.0 and 4.8 for San Francisco and 5.7 and 5.1 for the other bay counties. On the other hand, the per cents for the rural counties north of Tehachapi were only 4.3 and 4.0, the per cents being only 4.1 and 3.5 for Northern California alone.

No marked variations appear between the several geographic divisions in the proportion of deaths in youth, 5 to 14 years, at which period occurred only 3.4 per cent of all deaths in the State each year.

Age and Cause of Death.—The tables on the following pages show for California in 1907 and 1906, first, the number of deaths from certain principal causes classified by age periods, and second, the per cent distribution, by age periods, of the deaths from each of these causes.

TABLE 19.—*Deaths from Certain Principal Causes classified by Age Periods, for California: 1907 and 1906.*

CAUSE OF DEATH.	Deaths.	Under 1 Year.	1 to 4 Years.	5 to 14 Years.	15 to 64 Years.	65 Yrs. and Over.	Age Unknown.
1907.							
ALL CAUSES	31,095	3,422	1,484	1,060	16,761	8,175	193
Typhoid fever	558	1	27	45	463	21	1
Malarial fever	70	4	4	6	40	16	----
Smallpox	6	-------	-------	-------	6	-------	----
Measles	189	57	89	25	17	1	----
Scarlet fever	72	5	27	34	6	-------	----
Whooping-cough	173	90	64	14	5	-------	----
Diphtheria and croup	380	19	187	146	28	-------	----
Influenza	114	3	1	1	29	80	----
Plague	82	2	7	9	57	6	1
Other epidemic diseases	121	16	3	5	50	46	1
Tuberculosis of lungs	4,040	32	44	78	3,582	293	11
Tuberculosis of other organs	567	63	105	67	301	28	3
Cancer	1,590	-------	2	9	978	597	4
Other general diseases	1,095	48	21	44	758	214	10
Meningitis	657	140	141	111	246	17	2
Other diseases of nervous system	2,403	90	43	35	1,146	1,076	13
Diseases of circulatory system	4,362	3	6	44	2,131	2,159	19
Pneumonia and broncho-pneumonia	2,678	372	233	67	1,330	662	14
Other diseases of respiratory system	910	123	42	12	333	397	3
Diarrhea and enteritis, under 2 years	899	758	141	-------	-------	-------	----
Diarrhea and enteritis, 2 years and over	288	-------	82	18	90	98	----
Other diseases of digestive system	1,588	73	52	91	1,009	358	5
Bright's disease and nephritis	1,787	22	17	15	991	740	2
Childbirth	265	-------	-------	-------	264	-------	1
Diseases of early infancy	1,031	1,031	-------	-------	-------	-------	----
Suicide	608	-------	-------	2	544	56	6
Other violence	2,711	112	100	155	1,996	274	74
All other causes	1,851	358	46	27	361	1,036	23
1906.							
ALL CAUSES	29,303	3,347	1,320	988	15,324	7,833	491
Typhoid fever	657	5	34	78	519	17	4
Malarial fever	111	14	7	5	54	31	----
Smallpox	36	2	3	-------	25	5	1
Measles	169	39	95	24	11	-------	----
Scarlet fever	52	1	20	21	7	-------	3
Whooping-cough	122	67	45	10	-------	-------	----
Diphtheria and croup	244	22	86	113	23	-------	----
Influenza	196	8	5	2	62	118	1
Other epidemic diseases	174	29	16	7	65	56	1
Tuberculosis of lungs	3,861	36	46	82	3,414	263	20
Tuberculosis of other organs	576	85	122	61	281	27	----
Cancer	1,502	1	5	3	939	546	8
Other general diseases	1,016	37	17	61	682	211	8
Meningitis	466	150	118	62	120	14	2
Other diseases of nervous system	2,297	89	46	37	1,031	1,079	15
Diseases of circulatory system	3,766	4	1	50	1,827	1,869	15
Pneumonia and broncho-pneumonia	2,431	355	191	75	1,115	683	12
Other diseases of respiratory system	756	112	39	22	227	353	3
Diarrhea and enteritis, under 2 years	930	792	138	-------	-------	-------	----
Diarrhea and enteritis, 2 years and over	338	-------	74	22	114	126	2
Other diseases of digestive system	1,410	75	43	69	882	335	6
Bright's disease and nephritis	1,622	20	6	24	908	662	2
Childbirth	266	-------	-------	-------	265	-------	1
Diseases of early infancy	946	946	-------	-------	-------	-------	----
Suicide	501	-------	-------	2	432	58	9
Earthquake and fire	750	23	11	20	327	67	302
Other violence	2,152	110	110	119	1,513	248	52
All other causes	1,956	325	42	19	481	1,065	24

TABLE 20.—*Per Cent Distribution, by Age Periods, of Deaths from Certain Principal Causes, for California: 1907 and 1906.*

CAUSE OF DEATH.	Per Cent of Deaths.											
	Under 1 Year.		1 to 4 Years.		5 to 14 Years.		15 to 64 Years.		65 Years and Over.		Age Unknown.	
	1907.	1906.	1907.	1906.	1907.	1906.	1907.	1906.	1907.	1906.	1907.	1906.
ALL CAUSES	11.0	11.4	4.8	4.5	3.4	3.4	53.9	52.3	26.3	26.7	0.6	1.7
Typhoid fever	0.2	0.7	4.8	5.2	8.1	11.9	83.0	79.0	3.7	2.6	0.2	0.6
Malarial fever	5.7	12.6	5.7	6.3	8.6	4.5	57.1	48.7	22.9	27.9	......	......
Smallpox	......	5.6	......	8.3	......	......	100.0	69.5	......	13.9	......	2.7
Measles	30.2	23.1	47.1	56.2	13.2	14.2	9.0	6.5	0.5	......	......	......
Scarlet fever	7.0	1.9	37.5	38.5	47.2	40.4	8.3	13.4	......	......	......	5.8
Whooping-cough	52.0	54.9	37.0	36.9	8.1	8.2	2.9	......	......	......	......	......
Diphtheria and croup	5.0	9.0	49.2	35.3	38.4	46.3	7.4	9.4	......	......	......	......
Influenza	2.6	4.1	0.9	2.6	0.9	1.0	25.4	31.6	70.2	60.2	......	0.5
Plague	2.5	......	8.5	......	11.0	......	69.5	......	7.3	......	1.2	......
Other epidemic diseases	13.2	16.7	2.5	9.2	4.2	4.0	41.3	37.3	38.0	32.2	0.8	0.6
Tuberculosis of lungs	0.8	1.0	1.1	1.2	1.9	2.1	88.6	88.4	7.3	6.8	0.3	0.5
Tuberculosis of other organs	11.1	14.7	18.5	21.2	11.8	10.6	53.1	48.8	5.0	4.7	0.5	......
Cancer	......	0.1	0.1	0.3	0.6	0.2	61.5	62.5	37.5	36.4	0.3	0.5
Other general diseases	4.4	3.6	1.9	1.7	4.0	6.0	69.2	67.1	19.6	20.8	0.9	0.8
Meningitis	21.3	32.2	21.5	25.3	16.9	13.3	37.4	25.8	2.6	3.0	0.3	0.4
Other diseases of nervous system	3.7	3.9	1.8	2.0	1.5	1.6	47.7	44.9	44.8	47.0	0.5	0.6
Diseases of circulatory system	0.1	0.1	0.1	0.1	1.0	1.3	48.9	48.5	49.5	49.6	0.4	0.4
Pneumonia and broncho-pneumonia	13.9	14.6	8.7	7.8	2.5	3.1	49.7	45.9	24.7	28.1	0.5	0.5
Other diseases of respiratory system	13.5	14.8	4.6	5.2	1.3	2.9	36.6	30.0	43.7	46.7	0.3	0.4
Diarrhea and enteritis, under 2 years	84.3	85.2	15.7	14.8	......	......	......	......	......	......	......	......
Diarrhea and enteritis, 2 years and over	......	......	28.5	21.9	6.3	6.5	31.2	33.7	34.0	37.3	......	0.6
Other diseases of digestive system	4.6	5.3	3.3	3.0	5.7	4.9	63.5	62.6	22.6	23.8	0.3	0.4
Bright's disease and nephritis	1.2	1.2	1.0	0.4	0.8	1.5	55.5	56.0	41.4	40.8	0.1	0.1
Childbirth	......	......	......	......	......	......	99.6	99.6	......	......	0.4	0.4
Diseases of early infancy	100.0	100.0	......	......	......	......	......	......	......	......	......	......
Suicide	......	......	......	......	0.3	0.4	89.5	86.2	9.2	11.6	1.0	1.8
Earthquake and fire	......	3.1	......	1.5	......	2.6	......	43.6	......	8.9	......	40.3
Other violence	4.2	5.1	3.7	5.1	5.7	5.6	73.6	70.3	10.1	11.5	2.7	2.4
All other causes	19.3	16.6	2.5	2.1	1.5	1.0	19.5	24.6	56.0	54.5	1.2	1.2

From the table giving the per cent distribution it appears that the per cents of deaths at the productive ages, from 15 to 64 years, were above the general averages of 53.9 and 52.3 for deaths from the following important causes: childbirth, 99.6 each year; tuberculosis of the lungs, 88.6 in 1907 and 88.4 in 1906; suicide, 89.5 and 86.2; typhoid fever, 83.0 and 79.0; miscellaneous violence, 73.6 and 70.3; plague, 69.5 in 1907 alone; diseases of the digestive system other than diarrhea, 63.5 and 62.6; cancer, 61.5 and 62.5; and Bright's disease and nephritis, 55.5 and 56.0.

The per cents of deaths at the period of old age, 65 years and over, were above the general averages for 1907 and 1906, 26.3 and 26.7, for deaths from the following notable causes: influenza, 70.2 and 60.2; miscellaneous causes, including "old age" or senility, 56.0 and 54.5; diseases of the circulatory system, 49.5 and 49.6; diseases of the nervous system other than meningitis, 44.8 and 47.0; diseases of the respiratory system other than pneumonia, 43.7 and 46.7; Bright's disease and nephritis, 41.4 and 40.8; cancer, 37.5 and 36.4; and diarrhea and enteritis, 2 years and over, 34.0 and 37.3.

The per cents of deaths in infancy, or the first year of life, were above the general averages of 11.0 and 11.4 for deaths from the following causes: early infancy (premature birth, congenital debility, etc.), 100.0 each year; diarrhea and enteritis, under 2 years, 84.3 and 85.2; whooping-cough, 52.0 and 54.9; measles, 30.2 and 23.1; meningitis, 21.3 and 32.2; pneumonia and broncho-pneumonia, 13.9 and 14.6; other diseases of the respiratory system, 13.5 and 14.8; and tuberculosis other than pulmonary, 11.1 and 14.7.

The per cents of deaths in childhood, 1 to 4 years, were above the general averages of 4.8 in 1907 and 4.5 in 1906, for deaths from the following causes: diphtheria and croup, 49.2 and 35.3; measles, 47.1 and 56.2; scarlet fever, 37.5 and 38.5; whooping-cough, 37.0 and 36.9; diarrhea and enteritis, 2 years and over, 28.5 and 21.9; meningitis, 21.5 and 25.3; tuberculosis of other organs than the lungs, 18.5 and 21.2; diarrhea and enteritis, under 2 years, 15.7 and 14.8; pneumonia and broncho-pneumonia, 8.7 and 7.8; and plague, 8.5 in 1907 alone.

The per cent of deaths in youth, 5 to 14 years, was above the general average of 3.4 each year for deaths from the following causes: scarlet fever, 47.2 in 1907 and 40.4 in 1906; diphtheria and croup, 38.4 and 46.3; meningitis, 16.9 and 13.3; measles, 13.2 and 14.2; tuberculosis other than pulmonary, 11.8 and 10.6; plague, 11.0 in 1907 alone; typhoid fever, 8.1 and 11.9; whooping-cough, 8.1 and 8.2; diarrhea and enteritis, 2 years and over, 6.3 and 6.5; other diseases of the digestive system, 5.7 and 4.9; and miscellaneous violence (accidental injuries, etc.), 5.7 and 5.6.

The age was unknown for altogether 302, or 40.3 per cent, of the 750 victims of earthquake and fire in April, 1906. The per cents of unknown age were also considerable for deaths from miscellaneous violence, 2.7 in 1907 and 2.4 in 1906; for deaths by suicide, 1.0 and 1.8; and for deaths from plague, 1.2 in 1907 alone, as well as for deaths from more or less indefinite causes, 1.2 each year.

TABLE 21.—*Deaths from each Specified Disease and Class of Diseases, classified by Sex, Race, Nativity, and Age Periods, for California: 1907.*

No.	CAUSE OF DEATH.	Total Deaths	Male	Female	White	Negro	Indian	Chinese	Japanese	WHITE.				Under 1 Year	1 to 4 Years	5 to 14 Years	15 to 64 Years	65 Years and Over	Age Unknown
										Born in California	Born in Other States	Foreign Born	Unknown						
	ALL CAUSES	31,095	19,666	11,429	29,339	449	120	670	517	8,332	10,482	9,396	1,129	3,422	1,484	1,060	16,761	8,175	193
	I. GENERAL DISEASES	9,057	5,445	3,612	8,406	146	44	286	175	2,499	3,065	2,653	189	340	531	483	6,320	1,302	81
	(A.) Epidemic diseases	1,765	1,058	707	1,632	16	9	26	82	866	419	327	20	197	409	285	701	170	3
1	Typhoid fever	558	394	164	488	7	2	3	58	164	172	145	7	1	27	45	463	21	1
2	Exanthematic typhus																		
3	Relapsing fever	1		1	1					1					1				
4	Malarial fever	70	42	28	66		1	1	2	18	27	16	5	4	4	6	40	16	
5	Smallpox	6	5	1	5	1				2		3					6		
6	Measles	189	108	81	186	1	2			143	27	16		57	89	25	17	1	
7	Scarlet fever	72	29	43	72					55	10	7		5	27	34	6		
8	Whooping cough	173	71	102	167	3	3			151	11	4	1	90	64	14	5		
9	(a) Diphtheria	296	164	132	289			5	2	211	61	14	3	9	131	129	27		
	(b) Croup	84	48	36	81				3	68	10	3		10	56	17	1		
10	Influenza	114	62	52	112	1		1		9	53	50		3	1	1	29	80	
11	Miliary fever																		
12	Asiatic cholera																		
13	Cholera nostras	1	1					1									1		
14	Dysentery	51	29	22	44	1	1	4	1	5	22	15	2	2	1	1	14	32	1
15	Plague	82	57	25	70	1		7	4	22	9	37	2	2	7	9	57	6	1
16	Yellow fever																		
17	Leprosy	4	2	2	2			2				2					4		
18	Erysipelas	50	34	16	47	1		2		16	16	15		13	1	2	20	14	
19	Other epidemic diseases	14	12	2	2				12	1	1			1		2	11		
	(B.) Other general diseases	7,292	4,387	2,905	6,774	130	35	260	93	1,633	2,646	2,326	169	143	172	198	5,619	1,132	28
*20	Septicemia	108	68	40	102	1		4	1	32	37	30	3	7	5	5	80	11	
21	Glanders and farcy																		
22	Malignant postule and charbon	1	1		1							1					1		
23	Rabies																		
24	Actinomycosis, trichinosis, etc.																		
25	Pellagra																		
†27	Tuberculosis of lungs	4,040	2,561	1,479	3,674	89	27	197	58	994	1,450	1,145	85	82	44	78	3,532	293	11
†26	Tuberculosis of larnyx	29	20	9	27	1		1		9	13	4	1				25	4	
28	Tuberculous meningitis	230	136	94	213	4		4	9	146	42	25		50	82	32	64	2	
29	Abdominal tuberculosis	161	88	73	144	2	3	5	7	59	38	46	1	10	12	10	115	13	1
30	Pott's disease	26	18	8	24	1		1		6	10	8			2	7	16	1	
*31	Tuberculous abscess	1	1		1					1							1		
32	White swelling	10	7	3	9	1				4	3	2		1	1	5	3		
33	Tuberculosis of other organs	28	18	10	24	1		1	2	8	6	8	2		1	5	16	4	2
34	General tuberculosis	82	44	38	73	4		3	2	32	21	18	2	2	7	8	61	4	
35	Scrofula	4	3	1	4					4				1	2		1		

36	Syphilis	104	74	30	90	4		7	3	43	16	24	7	37	4	1	54	7	1
37	Gonorrhea of the adult	4	2	2	4					2		2					4		
38	Gonorrheal infections of children	1	1		1					1				1					
39	Cancer of mouth	59	49	10	58			1		2	24	32				2	28	28	1
40	Cancer of stomach and liver	670	414	256	650	6		6	8	43	262	339	6			3	401	264	2
41	Cancer of intestines and peritoneum	139	77	62	134			3	2	14	65	53	2				85	54	
42	Cancer of genital organs	197		197	195	1	1			22	113	56	4				156	41	
43	Cancer of breast	115		115	114	1				18	55	39	2				74	41	
44	Cancer of skin	52	33	19	51			1		2	22	26	1				21	31	
*45	Cancer of other or unspecified organs	358	208	150	344	4		8	2	44	136	158	6		2	4	213	138	1
*46	Tumor (noncancerous)	17	9	8	17					4	6	7					11	6	
47	Acute articular rheumatism	116	67	49	112	3			1	39	48	23	2	1	3	23	79	10	
48	Chronic rheumatism and gout	72	32	40	67	2	1	2		8	32	25	2				35	37	
49	Scurvy	2		2	2					1	1				1			1	
50	Diabetes	235	120	115	230	3		2		31	96	99	4		1	9	145	79	1
51	Exophthalmic goiter	23	2	21	22	1				1	12	9					20	3	
52	Addison's disease	5	3	2	5					1	3	1					4	1	
53	Leukemia	29	20	9	29					12	7	10			3	2	23	1	
*54	Anemia, chlorosis	74	36	38	71			2	1	11	32	25	3		1	3	54	16	
†56	Alcoholism	245	233	12	238	1	3	1	2	32	79	94	33				204	34	7
57	Lead poisoning	7	7		7					1	3	3					6	1	
58	Other professional intoxications	2	2		2							2					2		
59	Other chronic poisonings	34	27	7	23			11		9	8	3	3				29	4	1
†55	Other general diseases	12	6	6	12					2	6	4		1	1	1	6	3	
	II. DISEASES OF THE NERVOUS SYSTEM	3,060	1,891	1,169	2,921	47	5	36	51	688	1,278	876	79	230	184	146	1,392	1,093	15
*60	Encephalitis	16	11	5	16					7	4	4	1	3	1		12		
61	Meningitis	657	402	255	602	10	3	3	39	369	140	86	7	140	141	111	246	17	2
62	Locomotor ataxia	53	48	5	52			1		7	32	12	1				39	13	1
63	Other diseases of spinal cord	86	51	35	85	1				15	39	29	2	2	4	2	46	32	
64	Apoplexy	1,143	687	456	1,108	13	1	15	6	76	582	415	35	5	6	5	491	632	4
65	Softening of brain	115	84	31	112	3				3	66	41	2				39	76	
*66	Paralysis	341	196	145	331	3	1	6		12	193	118	8	1		1	104	232	3
67	General paralysis of insane	120	91	29	115	2		3		11	59	40	5				90	29	1
68	Other forms of mental disease	126	72	54	119	3		3	1	19	45	49	6				119	6	1
74	*a* (pt). Other diseases of brain	94	69	25	87	5		1	1	18	33	27	9	1	4	3	60	23	3
69	Epilepsy	106	64	42	103	2		1		33	48	21	1		1	5	85	15	
*70	Convulsions (nonpuerperal)	10	2	8	9	1				3	4	2				1	8	1	
*71	Convulsions of children	93	51	42	89	1		1	2	84	3	2		74	19				
72	Tetanus	39	33	6	34	3		1	1	15	11	7	1	4	1	14	19	1	
73	Chorea	4	4		4					1	1	2				1	1	2	
74	*b* (pt). Other diseases of nervous system	43	16	27	42			1		7	16	18	1		2		27	14	
75	Diseases of the eye and its adnexa	1	1		1					1					1				
76	Diseases of the ear	13	9	4	12				1	7	2	3			4	3	6		
	III. DISEASES OF THE CIRCULATORY SYSTEM	4,362	2,795	1,567	4,187	57	7	87	24	337	1,891	1,814	145	3	6	44	2,131	2,159	19
77	Pericarditis	40	26	14	33	3	1	1	2	8	14	7	4			2	27	9	2
78	Endocarditis	47	34	13	42	1		1	3	9	21	11	1			2	38	7	
79	Heart disease	3,664	2,348	1,316	3,513	45	6	81	19	288	1,542	1,553	130		4	37	1,833	1,773	17
80	Angina pectoris	129	77	52	123	5		1		5	72	43	3			1	74	54	
81	Diseases of arteries	355	242	113	351	2		2		7	176	164	4				85	270	
82	Embolism and thrombosis	96	52	44	96					10	56	29	1		1	1	53	41	

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* Indefinite and unsatisfactory title. † Order of titles changed.

No.	Cause of Death.	Total Deaths	Male	Female	White	Negro	Indian	Chinese	Japanese	White.				Under 1 Year	1 to 4 Years	5 to 14 Years	15 to 64 Years	65 Years and Over	Age Unknown...
										Born in California	Born in Other States	Foreign Born	Unknown						
	III. DISEASES OF CIRCULA'Y SYSTEM—*Cont.*																		
83	Diseases of veins	6	4	2	6						3	2	1				5	1	
84	Diseases of lymphatics	2	1	1	2						2						1	1	
*85	Hemorrhages (except of lungs)	23	11	12	21	1		1		10	5	5	1	3	1	1	15	3	
86	Other diseases of circulatory system																		
	IV. DISEASES OF THE RESPIRATORY SYSTEM	3,588	2,322	1,266	3,384	54	12	83	55	993	1,113	1,143	135	495	275	79	1,663	1,059	17
*87	Diseases of nasal fossæ	2	2		1	1					1			1			1		
88	(a) Laryngitis	18	13	5	17			1		11	3	2	1	6	4	4	4		
	(b) Other diseases of larynx	11	6	5	9	1		1		3	4	2		1	1		9		
89	Diseases of the thyroid body	1		1	1							1					1		
90	Acute bronchitis	136	72	64	127	2		2	5	107	10	10		95	32		4	5	
91	Chronic bronchitis	393	212	181	383	4		4	2	33	157	187	6			5	118	269	1
92	Broncho-pneumonia	506	289	217	482	4	1	6	13	214	113	149	6	139	85	12	126	144	
93	Pneumonia	2,172	1,488	684	2,033	40	10	61	28	573	697	661	102	233	148	55	1,204	518	14
94	Pleurisy	65	46	19	58		1		6	8	30	17	3	1	2	1	48	13	
*95	Congestion of lungs	105	71	34	101			4		26	30	39	6	18	2	1	41	42	1
96	Gangrene of lungs	10	8	2	9				1	1	5	3					10		
97	Asthma	91	56	35	87	1		3		5	31	46	5				40	51	
98	Emphysema	15	10	5	15						12	3					7	8	
*99	(a) Hemorrhage of lungs	32	24	8	30	1		1		5	9	13	3		1		25	5	1
	(b) Other diseases of respiratory system	31	25	6	31					7	11	10	3	1		1	25	4	
	V. DISEASES OF THE DIGESTIVE SYSTEM	2,775	1,630	1,145	2,617	31	12	51	64	1,261	695	603	58	831	275	109	1,099	456	5
100	Diseases of mouth	10	5	5	9		1			6	2	1		4	1	2	2	1	
101	(a) Tonsilitis	32	17	15	31				1	18	9	3	1	2	5	14	10	1	
	(b) Diseases of pharnyx	11	6	5	10				1	5	3	2		2	2	1	6		
102	Diseases of esophagus	2	1	1	2						1	1					1	1	
103	Ulcer of stomach	98	67	31	93	1		1	3	10	36	44	3			1	70	27	
104	*(a) Gastritis	109	69	40	101	4		3	1	14	49	36	2			2	48	59	
	(b) Other diseases of stomach	48	32	16	45	1			2	8	19	15	3	1	1	1	24	21	
*100l	Dentition†	23	10	13	22				1	22				19	4				
105	Diarrhea and enteritis (under 2 years)	899	519	380	854	7	6	7	25	803	29	22		758	141				
106	Diarrhea and enteritis (2 years and over)	288	155	133	268	2	2	10	6	90	100	72	6		82	18	90	98	
107	Intestinal parasites	2	2		2					1	1				1		1		
108	(a) Hernia	75	50	25	67	1	2	4	1	10	16	38	3	7			39	29	
	(b) Obstruction of intestines	199	93	106	192	3			4	62	65	61	4	22	19	12	97	48	1
109	Other diseases of intestines	43	24	19	39	1		3		14	14	10	1	7	2	1	24	9	
110	Acute yellow atrophy of liver	2	1	1	2					1		1			1		1		
111	Hydatid tumors of liver	2	1	1	2					2							2		
112	Cirrhosis of liver	363	241	122	340	4		16	3	55	131	137	17	1	2		271	87	

113	Biliary calculi	32	14	18	32					3	13	14	2				18	14	
114	Other diseases of liver	118	67	51	110	1	1	3	3	12	50	45	3	3	2	1	82	30	
115	Diseases of spleen	9	6	3	9					1	4	4			1		5	1	2
116	Peritonitis (nonpuerperal)	171	85	86	161	4		2	4	36	65	54	6	5	3	15	128	25	
†118	Appendicitis	237	165	72	224	2		2	9	88	86	48	2		8	41	133	5	
†117	Other diseases of digestive system	2		2	2						2						2		
	VI. DISEASES OF GENITO-URINARY SYSTEM	2,126	1,822	304	2,058	29	3	14	22	312	949	756	41	27	17	18	1,190	870	4
119	Acute nephritis	76	45	31	71	1		2	2	47	14	10		21	12	2	40	1	
120	Bright's disease	1,711	1,117	594	1,657	23	3	10	18	207	788	626	36	1	5	13	951	789	2
121	Other diseases of kidneys	51	32	19	48	1		1	1	11	15	21	1	3		2	32	18	1
122	Calculi of urinary tract	2		2	2					2						1	1		
123	Diseases of bladder	94	81	13	93			1		2	45	46		2			24	68	
124	Diseases urethra, urinary abscess, etc.	4	3	1	4						1	3					3	1	
125	Diseases of prostate	43	43		43						27	15	1				5	38	
126	Nonvenereal diseases of male genital organs																		
127	Metritis	6		6	6					3	2	1					5	1	
128	Uterine hemorrhage (nonpuerperal)	2		2	2					1	1						1	1	
129	Uterine tumor (noncancerous)	26		26	23	3				6	8	7	2				25		1
130	Other diseases of uterus	33		33	33					10	16	6	1				33		
131	Ovarian tumors	31		31	30	1				4	17	9					23	8	
132	(a) Diseases of tubes	41		41	40				1	14	14	12							
	(b) Other diseases of female genital organs	4		4	4					3	1						4		
133	Nonpuerperal diseases of the breast (cancer excepted)	2	1	1	2					2							2		
	VII. CHILDBIRTH	265		265	255	2		3	5	106	88	60	1				264		1
134	Accidents of pregnancy	70		70	69				1	32	25	12					70		
135	Puerperal hemorrhage	22		22	22					6	8	8					22		
136	Other accidents of labor	15		15	15					6	4	5					15		
137	Puerperal septicemia	76		76	69	1		3	3	30	25	14					76		
138	Puerperal convulsions	50		50	49				1	20	16	13					50		
139	Puerperal phlegmasia alba dolens	1		1	1						1						1		
140	Other puerperal accidents	31		31	30	1				12	9	8	1				30		1
141	Puerperal diseases of the breast																		
	VIII. DISEASES OF THE SKIN	120	77	43	115	1	1	3		17	50	44	4	9	4	3	36	68	
142	Gangrene	73	50	23	70	1	1	1		4	35	29	2	1	2		13	57	
143	Carbuncle	9	4	5	8			1		1	3	4					8	1	
*144	Abscess	19	14	5	18			1		5	7	5	1	2		3	11	8	
145	Other diseases of the skin	19	9	10	19					7	5	6	1	6	2		4	7	
	IX. DISEASES OF THE LOCOMOTOR SYSTEM	29	20	9	27			2		15	5	6	1	8	8	6	10	2	
146	Diseases of bones	22	14	8	20			2		14	4	2		8	8	6	4	1	
147	Diseases of joints																		
*148	Amputation	7	6	1	7					1	1	4	1				6	1	
149	Other diseases of organs of locomotion																		
	X. MALFORMATIONS	231	141	90	226	1	1	1	2	219	4	3		206	16	8	1		
150	(a) Hydrocephalus	24	14	10	22		1		1	19	2	1		16	6	1	1		
	(b) Congenital malformation of heart, cyanosis	164	102	62	161	1		1	1	157	2	2		150	8	6			
	(c) Other congenital malformations	43	25	18	43					43				40	2	1			

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*Indefinite and unsatisfactory title. †Order of titles changed.

TABLE 21.—*Deaths from each Specified Disease and Class of Diseases, classified by Sex, Race, Nativity, and Age Periods, for California: 1907.—Continued.*

No.	Cause of Death	Total Deaths	Male	Female	White	Negro	Indian	Chinese	Japanese	White				Under 1 Year	1 to 4 Years	5 to 14 Years	15 to 64 Years	65 Years and Over	Age Unknown
										Born in California	Born in Other States	Foreign Born	Unknown						
	XI. EARLY INFANCY	1,031	579	452	986	10	3	7	25	986	....	....	....	1,031	....	....	....	....	....
151	(a) Premature birth	496	285	211	476	7	1	2	10	476	....	....	....	496	....	....	....	....	....
	*(b) Congenital debility	473	264	209	451	3	1	5	13	451	....	....	....	473	....	....	....	....	....
152	Other diseases of early infancy	59	28	31	57	....	1	....	1	57	....	....	....	59	....	....	....	....	....
153	Lack of care	3	2	1	2	....	....	....	1	2	....	....	....	3	....	....	....	....	....
	XII. OLD AGE	802	463	339	769	13	6	14	....	11	377	357	24	....	....	....	21	774	7
*154	Old age	802	463	339	769	13	6	14	....	11	377	357	24	....	....	....	21	774	7
	XIII. VIOLENCE	3,319	2,782	537	3,088	54	28	69	90	738	897	1,021	432	112	100	157	2,540	330	80
155	Suicide by poison	196	130	66	189	2	....	3	2	47	65	48	29	....	....	2	185	8	1
156	Suicide by asphyxia	38	27	11	37	....	....	1	....	3	18	12	4	....	....	....	33	4	1
157	Suicide by hanging or strangulation	52	46	6	46	....	....	5	1	5	13	18	10	....	....	....	42	10	....
158	Suicide by drowning	25	18	7	24	....	....	1	....	1	10	10	3	....	....	....	20	4	1
159	Suicide by firearms	231	206	25	221	3	1	2	4	43	80	62	36	....	....	....	211	17	3
160	Suicide by cutting instruments	47	47	....	44	....	....	2	1	5	13	16	10	....	....	....	36	11	....
161	Suicide by jumping from high places	6	5	1	6	....	....	....	....	....	....	6	....	....	....	....	5	1	....
162	Suicide by crushing	5	5	....	5	....	....	....	....	1	1	1	2	....	....	....	5	....	....
163	Other suicides	8	7	1	6	....	....	1	1	1	1	3	1	....	....	....	7	1	....
164	Fractures	95	58	37	91	2	....	....	2	8	41	38	4	....	....	3	35	57	....
165	Dislocations	2	1	1	2	....	....	....	....	....	1	1	....	....	....	....	....	2	....
†167	Burns and scalds	125	61	64	114	4	....	3	4	37	40	32	5	6	22	6	74	16	1
168	Burning by corrosive substances	11	7	4	11	....	....	....	....	7	3	1	....	1	4	2	4	....	....
169	Heat and sunstroke	14	13	1	14	....	....	....	....	4	4	4	2	1	1	....	10	1	1
170	Cold and freezing	25	25	....	24	....	1	....	....	2	4	12	6	....	....	....	15	10	....
171	Lightning (electricity)	41	40	1	37	2	2	....	....	11	19	7	....	....	1	4	36	....	....
172	Drowning	377	338	39	346	3	2	5	21	88	69	107	82	3	19	28	291	12	24
173	Starvation, privation, etc.	15	6	9	13	....	....	2	....	7	3	2	1	3	....	1	10	1	....
174	Inhalation of poisonous gases	69	49	20	68	....	....	....	1	21	18	25	4	1	3	4	49	10	2
175	Other accidental poisonings	100	64	36	94	3	....	2	1	43	31	17	3	7	24	10	50	9	....
†166	(a) Accidental gunshot wounds	102	94	8	97	1	3	1	....	44	23	22	8	....	....	23	71	8	....
	(b) Injuries by machinery	31	30	1	30	1	....	....	....	8	12	9	1	....	....		30	....	....
	(c) Injuries in mines and quarries	35	35	....	32	1	....	2	....	5	5	21	1	....	....	....	32	2	1
	(d) Railroad accidents and injuries	679	624	55	634	10	3	9	23	91	170	227	146	....	4	20	567	58	30
	(e) Injuries by horses and vehicles	187	169	18	175	2	....	3	7	42	56	62	15	....	8	19	142	18	....
	(f) Other accidental traumatisms	489	437	52	459	8	3	7	12	85	145	191	38	2	13	24	373	62	15
176	(a) Suffocation	15	9	6	15	....	....	....	....	10	2	2	1	8	....	2	5	....	....
	(b) Injuries at birth	72	43	29	71	1	....	....	....	71	....	....	....	72	....	....	....	....	....
	(c) Homicide	216	178	38	168	11	7	20	10	41	46	61	20	6	....	8	196	12	....
	(d) Other external violence	11	10	1	10	....	1	....	....	2	4	4	....	2	1	....	7	1	....

	XIV. ILL-DEFINED DISEASES	330	199	131	305	4	3	14	4	155	70	56	25	130	23	7	94	62	14
*177	"Dropsy"	39	25	14	35	......	......	4	......	3	16	14	2	......	1	1	11	26	......
*178	Sudden death	3	1	2	2	1	......	......	......	......	2	......	......	......	......	......	......	3	......
	(a) Heart failure	42	26	16	40	......	......	1	1	3	18	15	4	......	......	......	22	20	......
	(b) Inanition (over 3 months)‡	81	51	30	79	......	......	2	......	69	6	4	......	70	9	......	2	......	......
	(c) Debility (over 3 months)‡	2	1	1	2	......	......	......	......	1	......	1	......	1	......	......	1	......	......
*179	(d) Marasmus (over 3 months)‡	64	26	38	61	2	......	......	1	53	6	2	......	53	10	......	1	......	......
	(e) Fever	3	2	1	3	......	......	......	......	3	......	......	......	......	......	3	......	......	......
	(f) Other ill-defined diseases	14	5	9	13	......	......	1	......	3	9	1	......	......	1	......	13	......	......
	(g) Unknown	82	62	20	70	1	3	6	2	20	18	18	19	6	2	3	44	13	14

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* Indefinite and unsatisfactory title. † Order of titles changed.

‡ Deaths reported from this cause, under 3 months of age, are compiled under "Congenital debility," 151 (*b*).

TABLE 22.—*Deaths from each Specified Disease and Class of Diseases, classified by Sex, Race, Nativity, and Age Periods, for California: 1906.*

No.	CAUSE OF DEATH.	Total Deaths	Male	Female	White	Negro	Indian	Chinese	Japanese	WHITE.				Under 1 Year	1 to 4 Years	5 to 14 Years	15 to 64 Years	65 Years and Over	Age Unknown...
										Born in California	Born in Other States	Foreign Born	Unknown						
	ALL CAUSES	29,303	18,166	11,137	27,704	428	117	670	384	7,866	9,679	8,340	1,819	3,347	1,320	988	15,324	7,833	491
	I. GENERAL DISEASES	8,716	5,145	3,571	8,077	151	50	276	162	2,324	3,159	2,413	181	346	501	467	6,082	1,274	46
	(*A.*) *Epidemic diseases*	1,761	1,054	707	1,636	21	12	34	58	786	466	354	30	187	311	260	766	227	10
1	Typhoid fever	657	450	207	594	7	1	11	44	244	166	171	13	5	34	78	519	17	4
2	Exanthematic fever																		
3	Relapsing fever	2		2	1	1						1				1	1		
4	Malarial fever	111	64	47	100		2	5	4	31	42	27		14	7	5	54	31	
5	Smallpox	36	28	8	36					10	6	14	6	2	3		25	5	1
6	Measles	169	93	76	163	1	5			129	22	11	1	39	95	24	11		
7	Scarlet fever	52	25	27	52					36	10	3	3	1	20	21	7		3
8	Whooping cough	122	55	67	116	2	3		1	104	12			67	45	10			
9	(*a*) Diphtheria	191	103	88	184	2		5		121	52	11		12	59	97	23		
	(*b*) Croup	53	31	22	51			1	1	38	11	2		10	27	16			
10	Influenza	196	104	92	186	3	1	2	4	22	97	64	3	8	5	2	62	118	1
11	Military fever																		
12	Asiatic cholera																		
13	Cholera nostras	8	5	3	7			1		1	2	4			1		3	4	
14	Dysentry	68	38	30	61	2		5		20	18	22	1	8	11	2	20	27	
15	Plague																		
16	Yellow fever																		
17	Leprosy	1	1					1									1		
18	Erysipelas	87	52	35	81	3		2	1	26	28	24	3	18	3	4	36	25	1
19	Other epidemic diseases	8	5	3	4			1	3	4				3	1		4		
	(*B.*) *Other general diseases*	6,955	4,091	2,864	6,441	130	38	242	104	1,533	2,698	2,059	151	159	190	207	5,316	1,047	36
*20	Septicemia	99	68	31	92	4		1	2	22	38	29	3	4	1	6	70	17	1
21	Glanders and farcy																		
22	Malignant pustule and charbon	6	5	1	6							6					5	1	
23	Rabies																		
24	Actinomycosis, trichinosis, etc.,	2	2		1				1			1					2		
25	Pellagra																		
†27	Tuberculosis of lungs	3,861	2,461	1,400	3,503	93	28	179	58	930	1,468	1,031	74	36	46	82	3,414	263	20
†26	Tuberculosis of larynx	23	19	4	22			1		7	11	3	1			1	20	2	
28	Tuberculous meningitis	246	136	110	226	5	2	4	9	156	53	14	3	66	92	34	53	1	
29	Abdominal tuberculosis	166	83	83	139	3	3	6	15	69	33	34	3	17	21	8	107	13	
30	Pott's disease	30	23	7	25	1		2	2	13	8	4			2	7	21		
*31	Tuberculous abscess	4	2	2	3	1				1	1	1		1			3		
32	White swelling	15	9	6	14	1				7	3	4			2	4	7	2	
33	Tuberculosis of other organs	28	15	13	25			2	1	10	11	4		1	2	4	15	6	
34	General tuberculosis	64	38	26	59	1		1	3	17	24	17	1		3	3	55	3	
35	Scrofula	3	3		3					3				1	2				

36	Syphilis	67	50	17	55	2	2	5	3	31	9	11	4	21	8		31	4	3
37	Gonorrhea of the adult	3	1	2	2			1			2						3		
38	Gonorrheal infections of children	1	1		1					1				1					
39	Cancer of mouth	51	46	5	51					4	19	27	1	1			24	26	
40	Cancer of stomach and liver	578	335	243	565	1		9	3	82	234	235	14				331	242	5
41	Cancer of intestines and peritoneum	112	58	54	111	1				13	40	55	3				71	41	
42	Cancer of genital organs	240		240	235	4	1			28	117	90					194	45	1
43	Cancer of breast	119		119	118	1				9	61	46	2				87	32	
44	Cancer of skin	61	43	18	61					1	36	24					19	42	
*45	Cancer of other or unspecified organs	341	191	150	321	6	1	9	4	32	165	122	2		5	3	213	118	2
*46	Tumor (noncancerous)	9	4	5	8			1			5	3					4	5	
47	Acute articular rheumatism	120	55	65	118	1		1		40	43	30	5		5	32	63	20	
48	Chronic rheumatism and gout	101	47	54	99			2		6	56	35	2			3	51	47	
49	Scurvy	3	2	1	2				1			2		1			2		
50	Diabetes	227	120	107	221	4		2		33	116	69	3		1	16	137	72	1
51	Exophthalmic goiter	12	2	10	12						8	4					12		
52	Addison's disease	9	7	2	8		1			3	3	2					8	1	
53	Leukemia	31	18	13	30				1	9	12	9		1	3	1	22	4	
*54	Anemia, chlorsis	75	32	43	75					14	43	15	3	3	1	2	52	16	1
†56	Alcoholism	195	168	27	195					32	63	77	23		1	1	173	18	2
57	Lead poisoning	3	3		3					1	2						2	1	
58	Other professional intoxications																		
59	Other chronic poisonings	45	39	6	29	1		14	1	14	9	3	3				43	2	
†55	Other general diseases	5	5		3			2				2	1				2	3	
	II. DISEASES OF THE NERVOUS SYSTEM	2,763	1,647	1,116	2,671	34	5	31	22	634	1,091	873	73	239	164	99	1,151	1,093	17
*60	Encephalitis	18	11	7	17			1		6	4	6	1	2	4		10	1	1
61	Meningitis	466	263	203	440	3		7	16	309	88	37	6	150	118	62	120	14	2
62	Locomotor ataxia	64	51	13	63			1		3	31	28	1			1	40	23	
63	Other diseases of spinal cord	78	54	24	74	1	1	1	1	9	37	27	1	1	2	1	33	40	1
64	Apoplexy	1,097	673	424	1,070	13	1	12	1	65	521	448	36	5	2	8	489	588	5
65	Softening of brain	106	69	37	105	1				7	44	53	1				33	73	
*66	Paralysis	339	182	157	334	2		3		21	164	144	5		1	2	83	252	1
67	General paralysis of insane	103	76	27	98	5				15	50	28	5				65	35	3
68	Other forms of mental disease	132	74	58	125	5		2		18	60	39	8				110	20	2
74	a (pt). Other diseases of brain	91	50	41	85	4		2		22	30	30	3	1	3	4	57	25	1
69	Epilepsy	89	50	39	88		1			35	33	18	2	2	4	7	65	11	
*70	Convulsions (nonpuerperal	10	8	2	9			1		4	3	1	1			3	6		1
*71	Convulsions of children	96	51	45	91		2		3	86	5			71	25				
72	Tetanus	33	23	10	32			1		18	5	7	2	6	2	10	13	2	
73	Chorea	7	3	4	6				1	4	2				1	1	5		
74	b (pt). Other diseases of nervous system	27	6	21	27					8	12	6	1				19	8	
75	Diseases of the eye and its adnexa	2	1	1	2					2				1			1		
76	Diseases of the ear	5	2	3	5					2	2	1			2		2	1	
	III. DISEASES OF THE CIRCULATORY SYSTEM	3,766	2,424	1,342	3,612	51	4	81	18	294	1,570	1,620	128	4	1	50	1,827	1,869	15
77	Pericarditis	26	19	7	21	1		3	1	5	6	8	2			2	19	5	
78	Endocarditis	33	15	18	33					10	12	10	1			7	26		
79	Heart disease	3,208	2,048	1,160	3,072	46	2	72	16	248	1,311	1,401	112	2		39	1,589	1,565	13
80	Angina pectoris	89	60	29	88		1			7	48	30	3				41	47	1
81	Diseases of arteries	304	211	93	296	3		5		5	146	139	6				89	215	
82	Embolism and thrombosis	63	39	24	62		1			6	31	22	3			1	33	28	1

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* Indefinite and unsatisfactory title. † Order of titles changed.

TABLE 22.—*Deaths from each specified Disease and Class of Diseases, classified by Sex, Race, Nativity, and Age Periods, for California: 1906—Continued.*

No.	Cause of Death.	Total Deaths	Male	Female	White	Negro	Indian	Chinese	Japanese	White. Born in California	White. Born in Other States	White. Foreign Born	White. Unknown	Under 1 Year	1 to 4 Years	5 to 14 Years	15 to 64 Years	65 Years and Over	Age Unknown
	III. DISEASES OF CIRCULA'Y SYSTEM—*Cont.*																		
83	Diseases of veins	6	5	1	5	......	......	1	......	......	5	......	......	......	......	......	3	3	......
84	Diseases of lymphatics	4	3	1	4	......	......	......	......	1	1	2	......	......	......	1	3	......	......
*85	Hemorrhages (except of lungs)	33	24	9	31	1	......	......	1	12	10	8	1	2	1	......	24	6	......
86	Other diseases of circulatory system	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
	IV. DISEASES OF THE RESPIRATORY SYSTEM	3,187	1,964	1,223	3,034	45	9	70	29	935	935	1,059	105	467	230	97	1,342	1,036	15
*87	Diseases of the nasal fossæ	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
88	(a) Laryngitis	17	9	8	17	......	......	......	......	10	1	6	......	1	6	2	5	3	......
	(b) Other diseases of larynx	5	4	1	4	......	......	1	......	2	1	......	1	......	1	......	3	......	1
89	Diseases of the thyroid body	1	......	1	1	......	......	......	......	......	1	......	......	......	......	......	1	......	......
90	Acute bronchitis	141	77	64	134	3	1	2	1	98	14	22	......	80	23	5	10	23	......
91	Chronic bronchitis	293	148	145	288	3	......	2	......	29	119	137	3	1	3	3	84	202	......
92	Broncho-pneumonia	452	241	211	435	6	......	7	4	206	98	121	10	136	59	15	93	146	3
93	Pneumonia	1,979	1,282	697	1,872	31	7	50	19	537	599	658	78	219	132	60	1,022	537	9
94	Pleurisy	52	36	16	50	......	......	1	1	7	20	21	2	3	1	2	27	18	1
*95	Congestion of lungs	118	74	44	113	......	......	2	3	34	33	43	3	25	4	6	21	61	1
96	Gangrene of lungs	3	2	1	3	......	......	......	......	1	......	2	......	......	......	1	2	......	......
97	Asthma	65	44	21	62	1	......	1	1	3	28	28	3	......	1	......	33	31	......
98	Emphysema	8	6	2	8	......	......	......	......	1	3	4	......	1	......	......	3	4	......
*99	(a) Hemorrhage of lungs	38	29	9	35	1	1	1	......	5	14	12	4	1	......	1	29	7	......
	(b) Other diseases of respiratory system	15	12	3	12	......	......	3	......	2	4	5	1	......	......	2	9	4	......
	V. DISEASES OF THE DIGESTIVE SYSTEM	2,678	1,523	1,155	2,581	33	10	56	48	1,288	648	580	25	867	255	91	996	461	8
100	Diseases of mouth	7	4	3	7	......	......	......	......	5	1	1	......	5	......	......	1	1	......
101	(a) Tonsilitis	25	17	8	24	1	......	......	......	15	7	2	......	4	6	5	9	1	......
	(b) Diseases of pharynx	9	5	4	9	......	......	......	......	4	1	4	......	3	1	......	4	1	......
102	Diseases of esophagus	9	4	5	9	......	......	......	......	1	4	4	......	......	......	......	7	2	......
103	Ulcer of stomach	78	49	29	78	......	......	......	......	15	41	22	......	......	......	2	59	17	......
104	*(a) Gastritis	134	75	59	128	3	1	2	......	15	50	61	2	5	3	2	50	74	......
	(b) Other diseases of stomach	39	23	11	35	2	......	1	1	8	16	11	......	4	2	2	18	13	......
*100l	Dentition†	9	4	5	8	......	1	......	......	7	1	......	......	6	3	......	......	......	......
105	Diarrhea and enteritis (under 2 years)	930	501	429	899	8	4	5	14	866	27	6	......	792	138	......	......	......	......
106	Diarrhea and enteritis (2 years and over)	338	181	157	308	9	1	14	6	95	105	108	5	......	74	22	114	126	2
107	Intestinal parasites	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
108	(a) Hernia	81	40	41	78	......	......	3	......	6	23	45	4	5	......	......	41	33	2
	(b) Obstruction of intestines	159	94	65	151	1	......	2	5	58	48	45	......	28	19	7	65	40	......
109	Other diseases of intestines	36	18	18	34	......	......	1	1	10	16	8	......	4	1	3	23	5	......
110	Acute yellow atrophy of liver	1	1	......	1	......	......	......	......	......	1	......	......	......	......	......	1	......	......
111	Hydatid tumors of liver	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
112	Cirrhosis of liver	295	211	84	266	2	1	20	6	32	96	131	7	1	......	1	225	66	2

113	Biliary calculi	40	21	19	39				1	2	25	11	1				20	20	
114	Other diseases of liver	115	72	43	106	2	1	1	5	20	46	38	2	2		4	73	35	1
115	Diseases of spleen	2	1	1		1			1								2		
116	Peritonitis (nonpuerperal)	160	66	94	150	2	1	5	2	49	58	41	2	7	4	10	125	13	1
†118	Appendicitis	207	129	78	197	2		2	6	75	75	45	2	1	4	32	161	9	
†117	Other diseases of the digestive system	4	2	2	4						2	2				1	3		
	VI. DISEASES OF GENITO-URINARY SYSTEM	1,955	1,180	775	1,859	43	2	41	10	232	843	730	54	22	6	25	1,110	788	4
119	Acute nephritis	44	27	17	41	1			2	24	9	8		14	4	5	20	1	
120	Bright's disease	1,578	992	586	1,508	31		34	5	163	694	604	47	6	2	19	888	661	2
121	Other diseases of kidneys	46	35	11	39	2	1	3	1	2	17	18	2	1			29	16	
122	Calculi of urinary tract	2	1	1	2						1	1					1	1	
123	Diseases of bladder	95	84	11	92		1	2		7	42	42	1	1			30	63	1
124	Diseases urethra, urinary abscess, etc.	3	2	1	3					1	1	1				1	2		
125	Diseases of prostate	38	38		37			1			17	20					5	33	
126	Nonvenereal diseases of (male) genital organs	1	1			1												1	
127	Metritis	1		1	1							1					1		
128	Uterine hemorrhage (nonpuerperal)	3		3	3						1	2					3		
129	Uterine tumor (noncancerous)	31		31	28	3				9	13	5	1				28	3	
130	Other diseases of uterus	49		49	46	3				14	20	10	2				44	4	1
131	Ovarian tumors	27		27	25	2				3	15	7					22	5	
132	(a) Diseases of tubes	35		35	32			1	2	9	11	11	1				35		
	(b) Other diseases of female genital organs	2		2	2						2						2		
133	Nonpuerperal diseases of the breast (cancer excepted)																		
	VII. CHILDBIRTH	266		266	248	3	4	3	8	96	80	72					265		1
134	Accidents of pregnancy	87		87	80	1		2	4	39	27	14					87		
135	Puerperal hemorrhage	11		11	11					3	3	5					11		
136	Other accidents of labor	18		18	15	1	2			5	1	9					17		1
137	Puerperal septicemia	67		67	62	1		1	3	20	22	20					67		
138	Puerperal convulsions	45		45	44		1			19	16	9					45		
139	Puerperal phlegmasia alba dolens																		
140	Other puerperal accidents	38		38	36		1		1	10	11	15					38		
141	Puerperal diseases of the breast																		
	VIII. DISEASES OF THE SKIN	90	57	33	89				1	15	38	34	2	5		4	34	47	
142	Gangrene	52	33	19	52					6	23	21	2	3		1	11	37	
143	Carbuncle	3	2	1	3					1	1	1					3		
*144	Abscess	27	14	13	27					7	10	10		1		3	16	7	
145	Other diseases of the skin	8	8		7				1	1	4	2		1			4	3	
	IX. DISEASES OF THE LOCOMOTOR SYSTEM	36	24	12	36					14	15	7		8	2	4	19	3	
146	Diseases of bones	28	17	11	28					12	12	4		8	2	3	12	3	
147	Diseases of joints	1	1		1					1							1		
*148	Amputation	7	6	1	7					1	3	3				1	6		
149	Other diseases of organs of locomotion																		
	X. MALFORMATIONS	183	107	76	178	2		2	1	173	3	2		168	10	4	1		
150	(a) Hydrocephalus	17	10	7	17					16	1			11	4	1	1		
	(b) Congenital malformation of heart, cyanosis	134	80	54	129	2		2	1	127	1	1		128	4	2			
	(c) Other congenital malformations	32	17	15	32					30	1	1		29	2	1			

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* Indefinite and unsatisfactory title. † Order of titles changed.

No.	Cause of Death.	Total Deaths	Male	Female	White	Negro	Indian	Chinese	Japanese	White.				Under 1 Year	1 to 4 Years	5 to 14 Years	15 to 64 Years	65 Years and Over	Age Unknown...
										Born in California	Born in Other States	Foreign Born	Unknown						
	XI. EARLY INFANCY	946	553	393	911	14	1	12	8	909	2			946					
151	(a) Premature birth	479	274	205	468	4		5	2	468				479					
	*(b) Congenital debility	426	251	175	404	8	1	7	6	402	2			426					
152	Other diseases of early infancy	37	24	13	36	1				36				37					
153	Lack of care	4	4		3	1				3				4					
	XII. OLD AGE	787	431	356	764	8	4	11		7	364	378	15				34	746	7
*154	Old age	787	431	356	764	8	4	11		7	364	378	15				34	746	7
	XIII. VIOLENCE	3,403	2,747	656	3,210	34	23	65	71	759	813	946	692	133	121	141	2,272	378	363
155	Suicide by poison	150	100	50	143	2		4	1	17	40	62	24			1	131	16	2
156	Suicide by asphyxia	38	32	6	38					9	11	10	8			1	35	1	1
157	Suicide by hanging or strangulation	55	46	9	48			6	1	2	9	27	10				43	10	2
158	Suicide by drowning	9	6	3	9					3	1	5					8	1	
159	Suicide by firearms	180	168	12	172	2		1	5	24	62	57	29				160	17	3
160	Suicide by cutting instruments	42	37	5	39			1	2	7	8	20	4				32	10	
161	Suicide by jumping from high places	4	3	1	4					1		1	2				4		
162	Suicide by crushing	7	7		7						1	1	5				7		
163	Other suicides	16	13	3	14			1	1	2	4	5	3				12	3	1
164	Fractures	156	121	35	149	2		1	4	28	51	59	11		4	5	99	46	2
165	Dislocations	2	2		2						1	1						2	
†167	Burns and scalds	136	66	70	129	2	1	3	1	52	43	30	4	7	30	16	64	19	
168	Burns by corrosive substances	2	1	1	2						2						2		
169	Heat and sunstroke	23	17	6	23					5	5	11	2	4			12	7	
170	Cold and freezing	17	16	1	17					1	5	4	7		1		10	4	2
171	Lightning (electricity)	38	38		38					10	20	2	6			3	35		
172	Drowning	253	236	17	239	2	3		9	74	47	69	49	6	15	26	179	16	11
173	Starvation, privation, etc.	1	1		1								1						1
174	Inhalation of poisonous gases	69	52	17	65	1		2	1	15	15	29	6		3	2	52	12	
175	Other accidental poisonings	115	61	54	113	1		1		48	45	16	4	7	29	9	62	7	1
†166	(a) Accidental gunshot wounds	100	94	6	95		3	1	1	35	30	24	6		1	14	78	7	
	(b) Injuries by machinery	20	20		19				1	2	10	7					19	1	
	(c) Injuries in mines and quarries	52	52		50		1		1	6	12	20	12				46		6
	(d) Railroad accidents and injuries	410	383	27	386	4	1	5	14	66	121	122	77		8	16	343	35	8
	(e) Injuries by horses and vehicles	114	103	11	108	2	1		3	42	30	32	4		8	17	70	18	1
	(f) Other accidental traumatisms	379	344	35	364	1	3	2	7	69	117	138	40	5	10	6	285	64	9
176	(a) Suffocation	30	17	13	27	3			2	20	4	3		17	1	3	8	1	
	(b) Injuries at birth	64	47	17	62		2			62				64					
	(c) Homicide	164	128	36	131	11	8	6	8	33	30	45	23			2	142	9	11
	(d) Other external violence	7	7		5	1			1	4		1					7		
	(e) Earthquake and fire	750	529	221	711			31	8	122	89	145	355	23	11	20	327	67	302

	XIV. ILL-DEFINED DISEASES	527	364	163	484	10	5	22	6	191	123	126	44	142	30	6	191	143	15
*177	"Dropsy"	24	13	11	23				1	1	12	10					14	10	
*178	Sudden Death	6	5	1	6					1	2	1	2				1	4	1
*179	(a) Heart failure	85	65	20	83	1			1	7	42	27	7				43	40	2
	(b) Inanition (over 3 months)‡	87	48	39	82	2		2	1	70	6	6		66	14		8	4	
	(c) Debility (over 3 months)‡	19	11	8	17	1		1		11	1	4	1	11	2		4	1	1
	(d) Marasmus (over 3 months)†	71	35	36	69	2				59	6	4		53	11		1	6	
	(e) Fever	6	4	2	5			1		1	2	1	1	1		1	1	2	1
	(f) Other ill-defined diseases	17	10	7	16	1					10	6					9	7	1
	(g) Unknown	212	173	39	183	3	5	18	3	41	42	67	33	11	3	5	115	69	9

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* Indefinite and unsatisfactory title. † Order of titles changed.

‡ Deaths reported from this cause, under 3 months of age, are compiled under "Congenital debility," 151(*b*).

TABLE 23.—*Deaths Reported for Registration Districts* (*Cities, Towns, and Rural Parts of Counties*): *1907.*

[Cities or incorporated towns not reporting deaths omitted from table.]

REGISTRATION DISTRICT.	Deaths: 1907.
CALIFORNIA	31,095
Alameda County	3,609
Rural	772
Alameda	368
Berkeley	398
Hayward	35
Livermore	25
Oakland	1,950
Pleasanton	18
San Leandro	48
Alpine County	4
Amador County	70
Butte County	526
Rural	337
Biggs	6
Chico	95
Gridley	13
Oroville	75
Calaveras County	131
Colusa County	77
Rural	65
Colusa	12
Contra Costa County	347
Rural	158
Antioch	31
Concord	12
Martinez	67
Richmond	79
Del Norte County	17
El Dorado County	168
Fresno County	839
Rural	497
Fresno	333
Selma	9
Glenn County	52
Rural	46
Willows	6
Humboldt County	234
Rural	142
Eureka	90
Ferndale	2
Imperial County*	13
Rural	8
Imperial	5
Inyo County	11
Rural	10
Bishop	1
Kern County	299
Rural	105
Bakersfield	148
Kern	46
Kings County	143
Rural	44
Hanford	81
Lemoore	18
Lake County	74
Rural	62
Lakeport	12
Lassen County	27
Los Angeles County	6,346
Rural	891
Alhambra	21
Azusa	16
Claremont	1
Compton	1
Covina	32
Glendale	23
Hermosa Beach	6
Hollywood	38
Long Beach	220
Los Angeles	4,145
Monrovia	99
Ocean Park	25
Pasadena	360
Pomona	118
Redondo Beach	34
San Pedro	62
Santa Monica	114
Sawtelle	84
Sierra Madre	8
South Pasadena	25
Whittier	61
Wilmington	12
Madera County	82
Marin County	239
Rural	116
Belvedere	3
Mill Valley	18
San Rafael	67
Sausalito	35
Mariposa County	45
Mendocino County	258
Rural	185
Fort Bragg	39
Potter Valley	11
Ukiah	23
Merced County	138
Rural	92
Los Banos	7
Merced	39
Modoc County	42
Rural	29
Alturas	13
Mono County	3
Monterey County	257
Rural	108
Monterey	40
Pacific Grove	51
Salinas	58
Napa County	476
Rural	351
Calistoga	9
Napa	93
St. Helena	23
Nevada County	280
Rural	142
Grass Valley	87
Nevada City	51

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* Formed August 15, 1907, from part of San Diego County.

TABLE 23.—*Deaths Reported for Registration Districts (Cities, Towns, and Rural Parts of Counties): 1907—Continued.*

[Cities or incorporated towns not reporting deaths omitted from table.]

REGISTRATION DISTRICT.	Deaths: 1907.
Orange County	335
Rural	130
Anaheim	51
Fullerton	25
Orange	19
Santa Ana	110
Placer County	97
Rural	67
Auburn	27
Rocklin	3
Plumas County	100
Riverside County	312
Rural	72
Corona	28
Elsinore	10
Riverside	192
San Jacinto	10
Sacramento County	1,149
Rural	436
Sacramento	713
San Benito County	78
Rural	56
Hollister	14
San Juan	8
San Bernardino County	774
Rural	182
Colton	91
Ontario	43
Redlands	153
San Bernardino	284
Upland	21
San Diego County	759
Rural	50
Coronado	14
Escondido	8
National City	14
Oceanside	7
San Diego	666
San Francisco (city and county)	6,575
San Joaquin County	905
Rural	360
Lodi	43
Stockton	502
San Luis Obispo County	197
Rural	56
Paso de Robles	37
San Luis Obispo	104
San Mateo County	231
Rural	192
Redwood city	39
Santa Barbara County	356
Rural	153
Lompoc	13
Santa Barbara	190
Santa Clara County	1,200
Rural	565
Alviso	1
Gilroy	79
Los Gatos	45
Palo Alto	52
San José	405
Santa Clara	53
Santa Cruz County	389
Rural	116
Boulder Creek	13
Santa Cruz	187
Watsonville	73
Shasta County	323
Rural	237
Redding	86
Sierra County	58
Rural	49
Loyaltown	9
Siskiyou County	204
Rural	146
Etna	10
Fort Jones	1
Yreka	47
Solano County	356
Rural	112
Benicia	35
Dixon	15
Fairfield	12
Rio Vista	8
Suisun	6
Vacaville	25
Vallejo	143
Sonoma County	650
Rural	314
Cloverdale	6
Healdsburg	41
Petaluma	115
Santa Rosa	140
Sebastopol	16
Sonoma	18
Stanislaus County	134
Rural	82
Modesto	47
Oakdale	5
Sutter County	58
Tehama County	155
Rural	93
Red Bluff	62
Trinity County	52
Tulare County	226
Rural	148
Porterville	10
Tulare	40
Visalia	28
Tuolumne County	86
Ventura County	193
Rural	28
Oxnard	48
San Buenaventura	77
Santa Paula	40
Yolo County	152
Rural	87
Winters	5
Woodland	60
Yuba County	184
Rural	27
Marysville	148
Wheatland	9

HYGIENE.

DEPARTMENT OF HYGIENE.

ARCHIBALD R. WARD, DIRECTOR,
Assistant Professor of Bacteriology, University of California.

The work of the hygienic laboratory during the biennial period just completed,* has been characterized particularly by a gradual increase in its opportunities for usefulness. A few more physicians in the State have come to realize the value of having a bacteriological laboratory to call upon, and a few more towns are getting the benefit of the laboratory's aid in fighting contagious diseases. Examinations of one sort and another have been made during the two years for eighty towns in the State and for two hundred and sixty-seven physicians in these towns. A large part of the work has been directed towards the control of diphtheria. Experience has demonstrated that the laboratory methods can be of great assistance in fighting epidemics in the smaller communities. The total number of examinations of all sorts made in the two years is seven thousand two hundred and fifty-four (7,254); of these, five thousand and nine (5,009) were made in connection with diphtheria epidemics. Some diphtheria epidemic work extending slightly beyond the biennial period ending June 30, 1908, but here reported, involved making six thousand three hundred and twenty-five (6,325) more examinations. The total number of examinations since the last report is thirteen thousand five hundred and seventy-nine (13,579).

DIPHTHERIA.

Work on this disease is the most important function of the laboratory, for laboratory reports are indispensable to the physician who handles diphtheria cases in accordance with the best medical practice. In connection with the management of clinical cases, one thousand two hundred and thirty-one (1,231) examinations of throat cultures have been made, through the use of our regular mailing outfits. Despite the great distance that cultures have to be sent and the consequent loss of time, which makes reports of little value in severe urgent cases, our reports are of value for detecting mild cases, for differential diagnosis, for the confirmation of clinical diagnosis in typical cases, and for determining the proper period for quarantine. There are times in the beginning of mild epidemics when the value of the laboratory in determining the true character of the disease is out of all proportion to the number of examinations made. Every health officer derives support in quarantine measures by a confirmatory report from outside sources. An instance has come to light where a physician used the serum in our mailing outfits to make his own determination, but always sent his cultures to the laboratory later for a confirmatory report because of the effect upon the family of the patient.

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*July 1, 1906, to June 30, 1908.

THE PREVENTION OF DIPHTHERIA.

But the largest opportunity of the laboratory lies in the field of preventive medicine. Bacteriology has in no instance better explained the phenomena of the spread of a disease, nor designated more definitely measures for the control of a disease, than in the case of diphtheria. It has been demonstrated not only that patients harbor virulent diphtheria bacilli in the throat and nose, but that the germs remain for a long period after convalescence in those throats and noses, and constitute a real source of danger to susceptible individuals. Likewise healthy persons, themselves highly resistant to diphtheria, may harbor virulent bacilli in their throats or noses, without becoming victims of the disease, but may, at the same time, give the disease to less resistant persons. It has been observed that 2 to 4 per cent of the healthy people in a community, in the absence of a diphtheria epidemic, harbor typical diphtheria bacilli. During epidemics as high as 50 per cent (in rare cases) of the people in close contact with cases have been found to be bacilli carriers. Furthermore, we find diphtheritic infections exhibiting all grades of clinical manifestation from these perfectly healthy carriers up to clinical diphtheria of the most pronounced type. Clinical methods of diagnosis fail entirely to discover these mild cases. Even in the severe cases there is opportunity for confusing diphtheria with the membranous lesions of scarlet fever and tonsilitis. This great variation of clinical manifestations, this persistence of infection after convalescence, these cases so mild as to go unrecognized, and the frequent occurrence of carriers, makes the fight against diphtheria peculiarly dependent upon laboratory methods, for it is only upon examination of a culture that one can arrive at any certainty as to whether or not an individual who has been exposed is a safe member of the community. The fatality from diphtheria is on the decrease, but the morbidity is not decreasing. The recognized clinical cases under treatment and properly quarantined are not contributing to the occurrence of new cases.[1] It has been asserted that they account for not more than 2 per cent of the new cases. Where do the other 98 per cent of the cases originate? The belief at present is that they come from the bacilli carriers and mild, unrecognized cases, unsuspected and at large in the community. The logical remedy is, so far as possible, to search for these carriers and mild cases, separate them from their fellows, and treat them by the means now so thoroughly established in good medical practice. It is simply a broadening of the field of application of well-tried methods. But the difficulties involved in interference with the liberties of adults not associated with clinical cases has made impracticable any serious work in this direction among adults. Not so in the cases of school children. Sufficient work[2] has been done to demonstrate that the benefits outweigh the difficulties. The usual practice when an epidemic occurs or is threatened, is to close the schools, a procedure which turns the children on the streets without checking other means of association than the school. The loss of time is serious; the danger of the spread of the diphtheria is lessened, but not eliminated. A more efficient scheme is to examine all school children, and to exclude from school the bacilli carriers. The disease is directly combated by eliminating the dangerous individuals—the sources of the germs—and the majority of the school children lose no school time. In coöperative efforts with local health authorities along these lines the laboratory can exert a broad influence in the control of diphtheria.

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[1] Hill. Time Limit versus Culture Limit in Diphtheria Release. American Journal of Public Hygiene, Vol. XVII, Nov. 1907, No. 4, page 318.

[2] Graham-Smith. Journal of Hygiene, Vol. III (1903), page 216; Vol. IV (1904), page 258.

Cobbett. Journal of the Sanitary Institute, Vol. XXV (1904), page 405.

Wesbrook. The Journal of the American Medical Association, March 25, 1905; Report of the Minnesota State Board of Health for 1897-1900, page 497.

Various authors. The Bacteriology of Diphtheria. Cambridge University Press.

METHODS OF COMBATING DIPHTHERIA IN SCHOOLS.

As a preliminary to any work of this sort, it has been found necessary to have a thorough understanding between health and school boards. Unless the scheme is thoroughly understood by all the authorities concerned and the control of school attendance unreservedly yielded to the health officer, opposition that menaces the success of the work is sure to arise later. The family physician's certificate of freedom from clinical diphtheria, based on a mere physical examination, is one of many evils to be expected.

The method used by this laboratory in fighting a diphtheria epidemic in a school is as follows: By previous appointment, and preferably on Friday, representatives of the laboratory take cultures from the noses and throats of all people in the school, pupils and teachers. The pupils are then dismissed, to reassemble on Monday, when the results of the examination will be available. All persons showing positive cultures are excluded from school, together with all other school children in the same family. A letter somewhat similar to that following is sent home with the children:

BOARD OF HEALTH.

DEAR MADAM:

An examination has been made of the throat of ...., and it has been found that there are diphtheria germs present. This does not necessarily mean that he will have diphtheria, but it does mean that he has been exposed to the disease and may give it to other children. Although the germs may never show in the throat, except to bacteriological examination, yet he is a menace to other children.

Your children are, therefore, temporarily excluded from school. They ought not to associate with other children while absent from school. A permit to attend school will be issued when the throats of your children are free from the germs.

Examinations to determine the condition of the throat should be made about twice a week. Cultures for this purpose will be taken free of charge by the health officer.

Diphtheria is spread by children's using in common such things as cups, spoons, pencils and the like; sucking the same toys; coughing in each other's faces; kissing; or by any of the various ways by which germs in the throat and saliva may be transferred.

Yours truly,

————————, Health Officer.

In the mean time all physicians in town have been fully informed as to the character and purpose of the work. No pupil excluded on account of his harboring diphtheria germs is permitted to reënter until two negative cultures have been obtained from him, and at least one negative from the other members of the family. No pupil absent from school for more than two days for any cause is allowed to reënter without examination, and likewise, no new pupil is allowed to enter until an examination has been made. Full records of all cases are kept in the laboratory, and when conditions warrant a permit to attend school is prepared for signature by the health officer. Postal card reports of all examinations are sent to parents from the laboratory. Duplicate records of all examinations are kept in the school.

The manner of the examination of the families of excluded children must vary with local conditions. It is best that they be visited at home by a representative of the health officer. They may call at his office, or meet him in the office of the school principal at appointed intervals. The restraint imposed upon the children of excluded families must also vary with local conditions. Strict quarantine is desirable, but may be impossible in the face of a strong public opinion and poor facilities for enforcement. The quarantine card on a house undoubtedly alarms the parents of the neighbor's children and prevents mingling, even if it does not inspire perfect obedience within the house.

DIPHTHERIA IN THE LINCOLN SCHOOL, BERKELEY.

For a year or more, there had been intermittent trouble from diphtheria among the pupils of this school, in very marked contrast to conditions in other districts of the town. Conditions were becoming so bad in the fall of 1906 that the children were being kept from school and popular opinion was demanding that the school be closed. The proximity of the seat of trouble to the State Hygienic Laboratory favored a trial of the control of diphtheria by regulation of school attendance, on the basis of bacteriological examinations. The dual position of Dr. George F. Reinhardt, as Professor of Hygiene in the University and as Town Health Officer, unified the executive and laboratory branches of the work. These conditions permitted a closer supervision of the work and observation of results than has been possible in subsequent work in other towns.

On November 19, 1906, cultures were taken from the throats (only) of four hundred and seventy-five pupils and teachers, with the result that twenty-seven children were found harboring diphtheria bacilli—slightly over 5 per cent. The investigation of the histories of these individuals confirmed the value of this sort of work in locating centers of infection. Of the twenty-seven infected children, four were from families that had had clinical cases within a month; six gave histories confirming suspicion of unrecognized or mild manifestations. The rule requiring submission to bacteriological examination before entering school, after a short absence, brought to light the concealment of diphtheria in two families, and necessitated exclusion of children of nine other families, because of the discovery of bacilli carriers among them.

From November 19th to January 10th, twenty-two cases of diphtheria occurred among the school children; a circumstance that cast doubt upon the value of the method used. The occurrence of two cases shortly after the first examination, in which the clinical manifestations were primarily in the nose indicated that the first examination of the school was faulty, in that no nose cultures had been taken. The children excluded from school, too, were mingling freely on the streets and at children's parties with those at school. Altogether, the conditions suggested the necessity of a second examination with exclusion and quarantine of the carriers.

A second examination on January 10th resulted in the discovery of seventy-seven bacilli carriers—14 per cent of the school. Of these, ten had been previously excluded and then readmitted on two negative throat cultures. Three were from a family that had had diphtheria in October. One was from a family that had had a recent clinical case. One developed clinical diphtheria in a few days after exclusion. The other sixty-two gave no significant histories.

The favorable results following the second examination, as compared with the previous work, are shown in Table 1.

TABLE 1.

PERIOD.	Cases in Families Connected with School.	Cases in Families not Connected with School.
October 1st to 31st	5	1
November 1st to 19th	9	1
November 19th, first school examination.		
November 19th to 30th	4	0
December 1st to 31st	12	2
January 1st to 10th	6	0
January 10th, second school examination.		
January 10th to 31st	0	5
February 1st to 11th	0	5
February 11th to 28th	2	0
March 1st to 31st	0	0

The numerous examinations of the families of the children under quarantine showed any number of examples of the spread of diphtheria bacilli in families from one child (or adult) to another. The observations amply confirmed the wisdom of the policy of excluding all children when one carrier was found. The necessity of requiring at least two negatives before release from quarantine was demonstrated, and it was shown that with even two, a risk is taken.

The period of exclusion is shown in the following table:

TABLE 2.—*Duration of Quarantine.*

Time.	Cases.
10 to 20 days	37
20 to 30 days	43
30 to 40 days	18
40 to 50 days	14
50 to 100 days	12
100 to 150 days	5
Over 150 days	0
Total	129

The average period of quarantine was thirty-three days; the longest case, one hundred and thirty-nine days. These figures include only those cases in which examinations were allowed. Some families refused to have examinations made, and so unnecessarily prolonged the period of this exclusion from school. Two thousand two hundred and sixty-four examinations were made in connection with the work.

From the facts observed, the following conclusions* were drawn:

(1) The epidemic that existed in the school was due to three factors: first, the existence of mild cases of diphtheria that, because of lack of bacteriological examination, went unrecognized as diphtheria; second, the insufficient length of quarantine in clinical cases; and, third, germ cases following exposure and never showing clinical symptoms.

(2) Our attempts to isolate all infected children had no effect on the course of the epidemic, so long as we made throat cultures alone. When we took both nose and throat cultures, and quarantined all the children showing positive cultures, the epidemic stopped.

(3) It is extremely important, in times of danger from diphtheria, that every sore throat, no matter how far it may seem to be from diphtheria, be regarded as suspicious, until a bacteriological examination has proved it to be otherwise.

(4) It is such a frequent occurrence to have a positive follow a negative culture, that at least two negatives should be demanded for release from quarantine. No case should be released on clinical signs alone.

(5) It is possible to stop epidemic diphtheria in a public school by regulation of attendance by bacteriological findings.

DIPHTHERIA IN OROVILLE.

Diphtheria was apparently introduced into the town by a visitor who had recently recovered from the disease elsewhere. One case was reported on November 14th, shortly after the arrival of the visitor in the family. No more cases were reported for six weeks.

From December 25, 1907, until January 25, 1908, cases were reported in fifteen families. Six of these families consumed milk from the R——— dairy. One of these six families was reported on December 25th, and the other five were reported during the five days, January 15th to 20th. Two other families gave a history of probable spread from the families on the milk route in question. Seven infected families in town gave no history of connection with the milk route.

The suspicions of the health officer were directed to the dairy by the number of infected families who were among its patrons and by the fact that few families consuming the milk escaped. A considerable portion of the milk was used by two cheap restaurants, and if any cases were contracted from the milk in these establishments, it was not possible to trace them.

The only people handling the milk were a man, his wife and daughter. Cultures were made from the nose and throat of each one. The mother and daughter gave positive cultures from the throat, while the man gave negative results. Bacilli persisted in the throat of the woman for three weeks in spite of constant effort to clear up the infection. No history of previous clinical diphtheria could be established, nor were clinical manifestations recognizable. The fact that the woman frequently milked the cows and delivered the milk is of interest. Upon the discovery of the carriers at the dairy, the local authorities took measures to prevent any further contamination of the milk.

Almost at the first appearance of diphtheria in the town, the schools had been closed, in spite of the fact that there was no evidence pointing to their being a source of infection. All cases in the town were either adults, children not attending school, or were attributable to the milk route.

The facts seemed to justify the opening of the school for those children who could pass an examination of the nose and throat for diphtheria bacilli. The examination of all children, several hundred, present on the first day that the schools were open, showed only 3.4 per cent to harbor diphtheria bacilli. This small percentage of carriers confirmed the conclusion that the school children were not primarily involved in the epidemic. Throughout the period that the school was under surveillance, many of the children who were refused admission because they showed diphtheria bacilli, were found to come from families that had previously had cases of diphtheria.

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* Archibald R. Ward and Margaret Henderson: The Control of Diphtheria in a Public School. California State Journal of Medicine, August, 1907.

TABLE 3.—*A Statistical Summary of the Work in Oroville.*

Total number of examinations	942
Total number of individuals examined	713
Total number of individuals examined first day	354
Total number of individuals giving positive cultures first day	12 (3.4%)
Total number of individuals giving positive cultures at any time	82

By means of this bacteriological control of attendance, the schools were kept open with perfect safety to the children attending, in the face of conditions that had led the local health authorities to feel it necessary to close them. The experience confirms our feeling that bacteriological examination of children kept in schools is a safe means of preventing an epidemic.

DIPHTHERIA IN HAYWARD.

Work in the Hayward Grammar School was carried on under great difficulties imposed by local conditions. The infection was of long standing and complicated with scarlet fever. The schools had already been closed for some time, and the parents had become impatient. The majority of the families were foreigners, and the explanation of the work difficult, if not impossible. The families were large, a fact which necessitated the exclusion of a larger number of children than usual. The families were widely scattered about the country, and difficulty was experienced in getting the individuals assembled for examination. The distribution by grades of infected individuals is shown in the following table:

TABLE 4.—*Distribution of Infected Pupils in Hayward Grammar School.*

SCHOOL GRADE.	Number Negative.	Number Positive.	Per Cent Positive.
Receiving	56	2	4
Low first	29	4	12
High first	56	11	16
Low second	14	0	0
Second	30	3	10
High second	24	3	11
Third	43	2	4
High third	31	3	0.8
Low fourth	39	11	22
Fourth	19	8	29
Low fifth	26	3	11
High fifth	36	10	21
Sixth	20	5	25
High sixth	37	2	0.5
Seventh	37	7	17
Eighth	25	3	0.1
Totals	522	77	12.8

It will be noted that the percentage in certain grades is high. The exclusion of all these infected individuals, together with the other children in their families, resulted in a crippling of the work in many grades. Quarantine was deemed impossible by the local authorities. There was clinical evidence of cases of diphtheria in the school after the examination. The local conditions and the fact that the school year was nearly spent, rendered it inadvisable to make the reëxamination, the necessity for which was so clearly indicated.

TABLE 5.—*A Statistical Summary of the Work in Hayward.*

Total number of examinations	1,658
Total number of individuals examined	757
Total number of individuals examined first day	599
Total number of individuals giving positive cultures on first day	77 (12.8%)
Total number of individuals giving positive cultures at any time	124
Total number of individuals excluded	197
Total number of families involved	84
Total number of positive cultures obtained after one negative	31
Total number of positive cultures obtained after two negatives	10*

DIPHTHERIA AT COLFAX.

The epidemic in Colfax is an excellent example of what can be accomplished when there is coöperation and harmony between the laboratory and the health and school authorities. The efforts of the very thorough and energetic health officer made it possible to stop the epidemic in a school that had been exposed to infection by clinical cases for months and to stop it with just one examination. On the first examination, 10 per cent of the children were found to be infected. These were excluded from the school and strictly quarantined, and there were no further cases of diphtheria in the school, whereas before the examination, there had been a constant succession of clinical cases.

TABLE 6.—*Statistical Summary of the Work in Colfax.*

Total number of individuals examined	145
Total number of examinations	321
Total number of individuals examined first day	107
Total number of individuals giving positive cultures on first day	10 (10%)

DIPHTHERIA AT PATTON.[1]

In April, 1908, diphtheria broke out among the employés and patients of the Southern California State Hospital at Patton. Antitoxin was administered to every inmate of the institution; the cases were isolated in the tubercular cottages, apart from the main building, and the epidemic was apparently stopped. In June, the disease reappeared. It was decided, this time, to deal with the epidemic by quarantining not only the cases, but all the infected individuals in the institution.

On June 29th, the bacteriologist from the State Hygienic Laboratory went to take charge of the situation. At that time the isolation cottages had a population of about sixty. Cases had been removed to the cottages as soon as they were diagnosed. Their rooms had been fumigated as soon as they were moved. Release from the isolation cottages had been granted when two cultures from the throat had given negative results. Antitoxin had been administered the week before to every one in the institution.

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*Eight of these occurred when there were other members of the family infected.

[1] Acknowledgment for writing the report of the results obtained at Patton is made to Miss Margaret Henderson, who represented the laboratory in the work.

On June 30th, the first examination of the entire household was commenced. Cultures were taken from both noses and throats in every case. Between June 30th and July 6th, every inmate and employé was examined. Of the eleven hundred and fifteen people in the institution, one hundred and twenty-nine, or 11.6 per cent, were found to be carrying diphtheria bacilli. These one hundred and twenty-nine people were added to the population of the isolation cottages, their belongings, their bedding and the side room, or dormitory, in which they slept, were thoroughly fumigated with formaldehyde, and the floors and walls washed with mercuric chloride.

Between July 6th and July 11th, the entire household was examined a second time for the purpose of detecting any infections that had escaped the first examination. In twelve of the fifteen wards the percentage of infected individuals was this time found to be very low, one or none or two to a ward. In three cases, the male and female sick wards and one other female ward, the percentage was still high, but a third examination of these three wards detected but one infected individual to a ward. By July 11th infections in the household had fallen to 1.8 per cent of the entire population. During this time the people at the isolation cottages were examined at rather frequent intervals, and when an individual showed two successive negatives, he was given a mercuric chloride bath, his clothes were fumigated, and he was sent back to the main house. In the interval between June 30th and July 11th, twenty-three men and eight women were released from quarantine in this manner. Cultures taken from two of these individuals a few days after release showed them to be again positive. We took this to be a reinfection, occurring in the interval that elapsed between the taking of the culture for the second negative on one afternoon and the time that the patient left the cottage the next afternoon. To avoid the danger of reinfecting the wards that these people seemed to threaten, a new system of release was established. After two successive negatives, a patient was removed to a halfway ward, apart from the isolation camp and apart from the main building. Patients in this halfway ward were segregated in groups of six or less. Their cultures were taken every day. When any one entire group gave negative cultures, they were sent back to the main building. If one member of the group gave a positive, he was sent back to the isolation camp and the rest were held for the result of yet another culture.

On July 12th, a third examination of the entire household was commenced. This was completed on July 20th, and showed the infection to be 2.8 per cent. Between July 12th and July 20th, fifty people were released from quarantine, making a total of eighty-one releases to July 20th.

After July 20th the percentage of infections rose rapidly. Between July 20th and 29th it was 4.6 per cent. Between July 29th and August 5th it was 11 per cent, as high as it had been at the beginning of the work. This new tide of infections demanded an explanation. Suspicion was directed to the individuals who had returned from the isolation cottage, for in every ward where there were any infections found this time at least one was of these returns. An examination of their records showed that of the eighty-one released before July 20th, thirty-one had at some subsequent time given a positive culture and been returned to the camp. These thirty-one individuals had been released after giving never less than two, and in the majority of cases from three to eight. successive negatives, at least one of them after removal from the infected camp to the halfway ward. In fifteen cases the first culture taken after return to the main house was positive, and in almost all the cases the positive came soon after return.

The explanation for all these facts seemed to be this: These thirty-one persons were true carriers. In the isolation camp the patients lived outdoors at all times, sat out under the trees during the day, ate in open tents, and slept in beds on the lawns. These outdoor conditions were excellent for getting rid of infection. The bacilli retreated to the crypts of the tonsils and the recesses of the nose, and were missed in the culture taking. So a succession of negatives was obtained. When the carriers returned to the less favorable conditions of the house, the infection again spread in the nose and throat, and the cultures were again positive. The percentage of infections in the main building had risen because these carriers had gone back. When this became evident, a new plan was adopted for dealing with carriers. Two wards were chosen for permanent isolation wards and cleared of their patients. These were arranged with separate dining-rooms, so that there need be no communication between them and the rest of the house. When an individual once released from the isolation cottage again gave a positive culture, he was regarded as a carrier and put into this carrier ward. Cultures were taken from every person returned to the house from the isolation cottage every other day for at least two weeks. At the end of that time, if he was still giving negatives, he was regarded as safe. and thereafter examined only with his ward. If he gave a positive, he was put into the carrier ward, to remain there for months, if necessary. Of two hundred and eight individuals released up to August 12th, sixty-three had given positives again and been put on the carrier ward.

With this system of careful supervision of released individuals, and of isolation of carriers, the percentage of infections in the household again fell rapidly. On August 7th, 8th, and 9th, six of the fourteen wards were examined and the percentage of infections found to be 0.7 per cent.

Of approximately twelve hundred inhabitants then, three hundred and sixty-four, or 30 per cent, had at one time or another, between June 30th and August 12th, shown the presence of diphtheria bacilli in either their throats or their noses. On August 12th one hundred and forty-five of these had been released from quarantine; sixty-three were living in the carrier ward, and one hundred and fifty-six were still at the isolation cottage. The infection in the main house was 0.7 per cent. Between June 29th and August 12th there were but three new cases of clinical diphtheria showing membranes. One of these was a new patient, who gave a positive culture on admission and developed a membrane before the next morning; another had been in the institution but two weeks, and had been given antitoxin upon arrival; the third was a patient of long residence.

From June 29th to August 12th six thousand three hundred and twenty-five examinations were made. The entire expense to the State was slightly over five cents for each examination.

TYPHOID FEVER.

One hundred and eighty-five Widal tests have been made. In the winter 1906-7, the prevalence of typhoid in the San Francisco Bay region was regarded as warranting special inspections of the region by voluntary inspectors. The only class of students qualified to do efficient work—those civil engineers specializing in sanitary engineering, and a few students in bacteriology—spent their only available time, the Christmas holidays, at the work. Field work was done and reports rendered to the State Board of Health by the following, whose assistance is gratefully acknowledged:

Name.	Territory.
C. G. Gillespie	San Leandro Canyon, border of Lake Chabot.
Galen A. Wood	Western Pacific Grading Camps in Livermore Valley.
Charles von Geldern	Vallejo.
George W. Lyons	Clayton, Concord, San Anselmo.
E. B. McFarland	Richmond.
Frank S. Robinson	Napa.

TYPHOID FEVER IN BERKELEY.

During the last half of October, 1906, there were twenty cases of typhoid fever reported to the Berkeley Health Office. Dr. Geo. F. Reinhardt, the Health Officer, suggested that the laboratory coöperate in a study of the significance of this distinctly unusual number of cases. A study of the cases with reference to water supply eliminated that source of infection from consideration, and information was secured that many of these cases had very likely been contracted in San Francisco and elsewhere, when typhoid was prevalent, because so many people were living in tents after the fire. Ten of the cases reported from October 15th to 29th were supplied with milk from one dealer. The last case occurring on this milk route was a son of the dairyman, who but a few days before had himself been delivering milk.

A visit to the home where he lay sick revealed dangerous conditions. The privy, a temporary affair, had no vault and no protection from flies. Not ten feet from it the milk cans were washed in a temporary shed. A washtub filled with milky water was found, which had evidently recently been used for milk cans. The family washing on the clothesline, and the washboard in the shed by the tub, indicated that the shed was also utilized for laundry purposes. Some eighteen delivery cans, measures, etc., were on pegs near by. Water for cleansing the cans was heated over a fire in a small tank, supported by a few bricks. The supply of water from this source would be ridiculously inadequate for the proper scalding of utensils. A carpenter, working on a nearby building and using the open privy, was convalescing from typhoid. Flies furnished the connection between the privy and the milk cans.

The milk delivered by this dealer, not great in amount, was not brought to his home before delivery; the cans only were brought there for washing. The dairyman was required to have this can washing done elsewhere, after which no further trouble was traced to the dairy. Neither the Berkeley Board of Health nor the Health Officer then had the power to order this simple precaution, and would have been compelled to wait for action by the Town Trustees, had not the State Board of Health taken prompt action, on request of the local authorities.

The milk sold by this dealer was only a fraction of the output of a large dairy near San Pablo, the product of which was mostly sold in Oakland, and it was not possible to trace it there. A visit to the dairy and inquiry among physicians in San Pablo revealed no trouble.

BUBONIC PLAGUE.

During the plague epidemic in the bay region, thirteen specimens of material from suspected cases, all from Oakland and Berkeley, were examined for plague. In five of these, *B. pestis* was demonstrated by its pathological effect on guinea pigs and its cultural characteristics. About one hundred rats from ships visiting Oriental ports were examined for plague, with negative results.

With the inauguration in February of the bounty system of collecting rats in Berkeley, the laboratory undertook an examination of rats for plague; the expense of these examinations was borne by the town of Berkeley. Over six hundred rats were examined. The staff of the laboratory was inadequate for this work, in addition to the regular routine, and the conditions which crowding in the laboratory necessitated were unsanitary.

In recognition of these facts, the Citizens' Health Committee of Berkeley appropriated funds raised by popular subscription for further assistance in the work. With the assistance of the Esterly Construction Company, a model open-air laboratory, screened from flies, was provided. Arrangement was made with Dr. Allen F. Gillihan in March to undertake responsibility for the pathological examination of the rats, and a summary of his work follows:

Autopsy Work on Rats. (Service of Dr. Ward.)

February 21, 1908, to March 10, 1908:	
Total number received and examined	677
Number showing suspicious lesions	0

Autopsy Work on Rats. (Service of Dr. Gillihan.)

March 16, 1908, to May 9, 1908:	
Total number received	1,285
Number not examined (decomposed)	118
Total number rats examined	1,167
Number showing suspicious lesions and bipolars in smears	12

TABLE 7.—*Statistical Summary of Autopsy Work on Rats.*

February 21, 1908, to May 9, 1908:	
Total number received	1,962
Total number not examined (decomposed)	118
Total number rats examined	1,844
Total number showing suspicious lesions and bipolars in smears	12

In no case did the facts warrant a conclusive diagnosis of plague. The smears showing the bipolar staining bacilli were obtained from the lungs in all of the above twelve rats. In three, the heart blood and spleen also showed the bipolars, but the enlarged lymph nodes invariably gave negative results. Seven of these suspicious rats were very closely studied by making cultures and by inoculations of guinea pigs, negative results being invariably obtained. Two of these suspects that had excited the greatest interest gave cultures of an organism quite different from plague, *e. g.*, luxuriant growth of a typical bipolar staining bacillus upon salt-agar, no involution forms and gas production on glucose bouillon. Cultures were repeatedly replated to insure a pure culture.

In case of doubt in deciding upon the significance of the lesions in a rat, it did not seem safe to let the presence of bipolars alone sway the decision in favor of plague. Neumann[1] has observed a natural disease in a rat, produced by a bipolar organism causing lesions strikingly like plague. Members of the *B. septicaemia hemorrhagica* group, typical bipolars and closely resembling *B. pestis* in cultural characters and lesions produced, are the cause of common diseases among a great number of wild and domesticated animals. This group of organisms causes disease in fowls, rabbits and guinea pigs, but evidence regarding rats is not at hand.

It should be noted that no case of plague in man was regarded as having originated in Berkeley during the period covered by the rat autopsy work here reported.

TUBERCULOSIS.

Two hundred and fifty-five examinations have been made of the sputum for tubercle bacilli.

WATER EXAMINATIONS.

As explained in a previous report, it is deemed inadvisable for the laboratory to pass judgment on the quality of the water, with reference to typhoid, without all the information that would be yielded by a sanitary survey of its source. The difficulties of collection and shipment of water in perfect condition also make it extremely difficult to get reliable results from examination of water from a distance. Fifty-seven samples of water have been examined, most of them having been collected in Berkeley by members of the laboratory staff.

The health officer desiring an examination usually has this question in mind: Is the water responsible for the typhoid fever prevalent? The answer to this is best determined by a study of the history of the cases and attending circumstances. In collecting this data, we have found it useful to employ a 3 by 5-inch card ruled with blanks, for the orderly classification of the information. Something very similar was used in the Palo Alto epidemic:

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[1] Beitrag zür Trage der pestähnlichen rattan pathogenen Bakterien. Zeitschrift für Hygiene und Infectionskrankheiten. Vol. 45 (1903), page 450.

STATE HYGIENIC LABORATORY—UNIVERSITY OF CALIFORNIA, BERKELEY.

Patient's name.................... Address....................
Date of first symptoms....................19
Date of taking to bed....................19
Date of physician's first visit....................19
Age.......... sex.......... color.......... nationality..........
Place of work, business, or school....................
Physician while ill....................
Health before attack....................
Out of town (date)....................
Patient discharged by physician (date)....................

Symptoms	Chills	Pain in Bowels	Tongue
	Vomiting	Nosebleed	Delirium
	Headache	Diarrhœa or Constipation	Eruption
	Fever		Spleen

(*Reverse of card.*)
TYPHOID FEVER.

Examination No..........
Widal reaction: Made?.... (*Yes or No*) Date when Positive .... Date when Suggestive .... Date when Negative ....
Complications....................
Drinking Water { Town supply / Private well } Milkman....................
Milk delivered { A.M.......... / P.M.......... } Source of cream and extra milk supply ....
Previous cases in the house....................
Has patient visited other cases?....................
Privy or Water closets.......... Plumbing..........
What probable sources of infection....................
What possible sources of infection....................
Remarks....................
....

TESTS OF SOLIDIFIED FORMALDEHYDE.

Tests were made of Dr. George Leininger's Solidified Formaldehyde as a room disinfectant in the strength recommended by the company—"less than one half of one ounce to 1,000 cubic feet." As a matter of fact, it was found that this amount is insufficient. Miss Margaret Henderson, in a report on the work, published in the Bulletin of the State Board of Health for July, 1907, concluded as follows:

> "I would conclude, then, that, so far as our experiments go, Dr. Leininger's Solidified Formaldehyde seems to be an efficient surface disinfectant when used in the proportion of at least two ounces for 1,000 cubic feet, but can not, in that proportion, be depended upon for any penetration. The fire risk in using it is not to be disregarded."

RAT VIRUS.

The measures taken against bubonic plague drew attention to the subject of the various brands of rat virus on the market. A series of tests was carried on to determine the value of the following brands: Danyz Virus, Deutsche Danyz-Virus-Vertriebs-Gessellschaft, Berlin; Ratite, Pasteur Vaccine Co.; Azoa (Rat Virus), Parke, Davis & Co. In no case did rats fed on these viruses die with lesions attributable to the virus, nor did rats fed on virus die in greater numbers than the check animals fed on plain wheat. None of the preparations tested can be recommended. Complete details of the experiments appear in the Bulletin for January, 1908.

CHANGES IN LABORATORY STAFF.

The Director of the laboratory will spend the year, beginning July 1, 1908, on leave, in study and travel. Dr. George F. Reinhardt will be in charge during his absence. Miss Margaret Henderson leaves the position of Assistant, but remains in the Department of Hygiene as an instructor. Miss Elsie Cole on July 1, 1908, was appointed Assistant in the State Hygienic Laboratory.

RECOMMENDATIONS.

The usefulness of the laboratory can be increased in the future in several ways. For one thing, provision should be made for branch stations throughout the State. This is desirable, primarily, to make it possible for physicians to get prompt reports. At present, reports are considerably delayed by the distance which cultures have to be sent to the laboratory, and the early reports, so desirable in dealing with such diseases as diphtheria, typhoid, and tuberculosis, are obtainable by physicians in the bay counties only. A few branches, well-located, would increase the value of the laboratory immeasurably. The present laboratory at the University could serve the nearby portions of the State, become the center from which media and supplies could be distributed to the branches, and continue to carry on research work.

Distinct provision for research ought certainly to be made. The whole subject of milk borne diseases and of pasteurization is demanding attention. The relation of milk to the spread of typhoid fever, diphtheria, and scarlet fever is beginning to be well recognized. Pasteurization of market milk is the most practicable remedy, but the suggestion raises questions concerning methods of pasteurization, the effect upon infant mortality from the use of heated milk and the bacteriological changes in pasterized milk. It is highly desirable that extended studies be made of the infant mortality of a city with reference to these points. California is in such close contact with the Orient and with the South American countries, that her public health problems are not those of the East. Our problems can not be settled for us by research laboratories situated in the Eastern States, where all the conditions are different.

It is imperative that the staff of the laboratory be enlarged. The work of diphtheria alone during the past year has been more than the force of the laboratory, unaided, could possibly have handled. This year the University has built a new building, with ample and excellent room for the laboratory. The space and the equipment for extensive work are thus provided, but the absurdly small staff of the laboratory and the meagre allowance for maintenance make it impossible to attempt much more than a limited routine. The staff of the laboratory should certainly be increased at least enough to make it possible to do the work demanded in the control of diphtheria.

PURE FOODS AND DRUGS.

DEPARTMENT OF PURE FOOD AND DRUGS.

PROF. M. E. JAFFA, DIRECTOR.

The work here reported covering a period of seven months (January 1 to August 1, 1908) was undertaken under the direction of the State Board of Health in accordance with the provisions of the Pure Food and Drug laws* of March 11, 1907. These laws, however, did not go into effect until January 1, 1908; thus ample time to conform to the new laws was afforded all manufacturers, dealers, and agents.

These laws were enacted for the purpose of preventing the manufacture, sale, or transportation of adulterated, mislabeled or misbranded foods, liquors and drugs, regulating the traffic therein, providing penalties for their violation, and of establishing a state laboratory for the analyses of foods, liquors and drugs.

The State Board of Health established its laboratory at the University of California, Berkeley, where the work is now being carried on. The facilities are not nearly as adequate as they should be and can barely be made sufficient for the present fiscal year.

Fourteen hundred samples of different foods and food materials have been received at the laboratory. Of the total number of samples sent in, 989 have been examined and analyzed. A tabular statement for each kind of food material so tested is presented herewith. These tables show the number of samples of each kind of food tested and of the number examined those which are either adulterated, misbranded or mislabeled, or not in violation of the California Pure Foods Act, as the case may be. It was considered that this would be the most concise way of presenting the results of the work without going into any unnecessary elaboration and presentation of a large number of tables which are hardly called for in such a report. In addition to the results of chemical studies herewith submitted, it may be said that considerable time is required for correspondence and personal interviews.

BAKING POWDERS.

Material.	No. Adulterated.	No. Misbranded or Mislabeled.	No. not in Violation of California Pure Foods Act.	Total.
Baking powder			6	6

The results of the six examinations showed that the baking powders contained only the usual ingredients for such products. The total carbon dioxid varies from a minimum of 10.12 per cent to a maximum of 15.78 per cent, with an average of 13.6 per cent.

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* Copy of these laws may be had upon application to Dr. N. K. Foster, Secretary of the State Board of Health, Sacramento, California, or to the Director of the State Food and Drug Laboratory, University of California, Berkeley, Calif.

Four of the samples contained starch, a small amount of which should not be considered as an adulterant, as it ordinarily protects the other ingredients from acting on each other and thus lowering the value of the powder.

When the standards for baking powder, now in preparation by the Department of Agriculture shall have been received by this laboratory, the more extensive and complete examinations of the different baking powders sold in this State will be taken up. Such complete examinations did not seem to be called for in the absence of the standards of purity for such products.

BEERS.

Material.	No. Containing Preservatives.	No. not Containing Preservatives.	Total.
Beers	3	35	38

The samples of beer were collected mainly in San Francisco and Oakland, and a few were received from Los Angeles. The examination was made chiefly for the purpose of ascertaining the presence or absence of non-permissible preservatives. Twelve samples were more completely analyzed with reference to specific gravity and the content of alcohol, extract, ash and phosphoric acid. The determinations showed for alcohol, a minimum percentage of 4.25 and a maximum of 6.0. The other data indicated that the composition of the respective beers was in accordance with the average for such beverages. Later on it is intended to make a comprehensive series of analyses, taking into consideration the use of substitutes for hops in the manufacture of beer.

BEVERAGES.

Material Labeled.	No. Adulterated.	No. Misbranded or Mislabeled.	No. Adulterated and Mislabeled.	No. not in Violation of California Pure Foods Act	Total.
Cider—apple	6	1		2	9
Cider—orange	3	1			4
Carbonated beverages (soda waters)	1		79	33	113
Totals	10	2	79	35	126

The above table indicates the number of samples of beverages, other than beer and wine, which have been analyzed by the laboratory up to the first of August.

It will be noticed that of the nine samples labeled apple cider, only two were found which would meet the required standards of purity as declared by the Secretary of Agriculture. Adulterations consisted in one case of salicylic acid; and in the remaining five of the addition of sugar and other materials thus making an imitation or compound cider. The results of examination of the four samples labeled orange cider indicate that they were all either adulterated or mislabeled. Salicylic acid was detected in one sample and coal-tar colors were found in two, the use of such colors not being declared on the labels as required by law. The content of ash or mineral matter in all four was far below the quantity of that found in a pure orange juice.

With reference to the 113 samples of carbonated beverages (soda waters) examined, it will be seen that 80 were adulterated and mislabeled, the adulterations consisting in the main of the addition of a coal-tar color, which was used to imitate some natural product and thus conceal inferiority. As is well understood, the use of certain coal-tar colors are allowed, provided such use is properly declared on the label.

It may be said that at the present writing practically all of the soda water now sold complies with the requirements of the California Pure Foods Act with reference to the matter of proper labeling.

BREADS.

Material.	No. Adulterated.	No. Misbranded or Mislabeled.	No. not in Violation of California Pure Foods Act.	Total.
Bread			3	3

Two samples of bread examined were from the California Home for Feeble-Minded, Eldridge, California, and one from the Southern California Hospital, at Patton. These analyses were made in accordance with the plan of the State Board of Health to utilize as far as possible the State laboratory as a means of examining foods for the different State hospitals with a view of ensuring to these institutions foods and food products of the best quality and complying in all respects with the Pure Food Laws of the State. The analyses of these breads showed them to be fully up to the standard of purity fôr a well-made bread from white flour. The protein content in two of the samples was 7.84 per cent and in the third, 7.67 per cent, showing a very close agreement in this respect.

BUTTER.

Material.	No. Adulterated.	No. Misbranded or Mislabeled.	No. not in Violation of California Pure Foods Act.	Total.
Butter		8		8

Eight samples of butter were sent to the laboratory for examination, and all were either misbranded or mislabeled. The mislabeling in seven out of eight samples was found to be due to misleading statements regarding the place of manufacture of the respective butters. One sample was mislabeled in that the contents of the package weighed thirteen ounces, while the statement on the label was to the effect that there were sixteen ounces in the package. Upon analysis it was found that all the samples contained no other than pure milk fat. The content of water was not excessive in any instance.

BUTTERMILK.

Material.	No. Adulterated.	No. Misbranded or Mislabeled.	No. not in Violation of California Pure Foods Act.	Total.
Buttermilk			2	2

Two samples of the buttermilk were examined, both found to be in accordance with requirements for such an article of food. No preservatives or added coloring matter were detected.

CATSUPS.

Material.	No. Adulterated.	No. Misbranded or Mislabeled.	No. not in Violation of California Pure Foods Act.	Total.
Catsup	1	4	11	16

Sixteen samples of this condiment were examined at the laboratory, with the satisfactory result that only one was found adulterated, the added material being a coal-tar color, such fact not being declared on the label; the color was used to conceal inferiority. Four out of the sixteen, or 25 per cent, were found to contain benzoic acid; the use of such preservative in the catsup was not stated on the label, thus constituting mislabeling. The use of benzoate of soda to the extent of one tenth of 1 per cent is allowed in such materials as catsup, provided a declaration is made on the label of the presence of such a preservative in the catsup; otherwise it use, no matter in what quantities, constitutes mislabeling. About 70 per cent of the number of samples examined were not in violation of the Pure Foods Act.

There are on the market samples of tomato catsup which have all the appearances of having been colored, other than by means of the tomato juice. In some such cases, the coloring matter is due to capsicum added as a spice, and consequently is permissible.

COLORING MATTERS.

Material.	No. Not Allowed in Foods.	No. Misbranded or Mislabeled.	No. not in Violation of California Pure Foods Act.	Total.
Coloring matter	24		13	37

These materials are used chiefly for intensifying the coloring of soda water, syrups, confectionery, extracts, and, to some extent, in macaroni and ice cream. Two classes of coloring matters are met with in the open market, the vegetable colors and coal-tar colors. The proclamation of the Secretary of Agriculture as to the use of coloring matters is contained in Food Inspection Decisions Nos. 76 and 77;

by the terms of these decisions certain coal-tar colors are permitted, but any one using the same must satisfy himself that the dye used is such as comes within the decision. Otherwise the use of the color will be deemed an adulteration. The use of coal-tar color in any food or food product must be declared on the label of such where, without the statement, the food or liquor can be said to be so colored as to conceal damage or inferiority. Again, where through the use of coloring matter, the article is made to represent itself to be something that it is not. A typical example of this would be a beverage labeled or sold as "raspberry soda," the color of the raspberry being given by the use of the coal-tar color and not by the use of fruit juice or extract of the raspberry. In case of a beverage bearing a purely fancy name, which does not purport to be and is not sold as the product of anything which if used in its manufacture would give the color which is actually given by the use of a dye—there is no occasion to state on the label the use of artificial color, unless damage or inferiority is concealed by the use of such color. Again, if candy is colored by one of the permissible coal-tar colors, but not so colored as to imitate any fruit or other material product, and is not so labeled, there is no necessity of stating on the label of such candy that it is artificially colored. If, however, the candy is colored so as to imitate the strawberry, and sold as "strawberry chews," it must be labeled "artificially colored." The table indicates that thirty-seven samples were examined with the result that twenty-four, or about 65 per cent. were found to be not permissible. In other words, only about one third of the number of samples examined were found to meet the requirements of the United States Foods Inspection Decision No. 76.

CONFECTIONERY.

Material.	No. Adulterated.	No. Misbranded or Mislabeled.	No. not in Violation of California Pure Foods Act.	Total.
Confectionery	40	4	103	147

In accordance with subdivision 7 of section 4 of the California Pure Foods Act, confectionery is adulterated if it contains terra alba, barytes, talc, chrome yellow, or other mineral substance or poisonous color or flavor, or other ingredient deleterious or detrimental to health, or any vinous, malt, or spirituous liquors or compound or narcotic drug.

For the purpose of ascertaining whether the candies sold in open market were or were not in violation of this section, one hundred and forty-seven samples were collected and examined. About 27 per cent of these were found to contain paraffin. The use of this material is expressly prohibited by the law, and justly so, too.

It is extremely injurious to the human system, in proof of which it may be said that this substance is practically unacted upon by strong sulphuric acid at a temperature of 130 degrees centigrade. Such being the case, it would hardly be possible to expect the digestive juices, weak as they are, to have any appreciable action on such a material, and therefore the body to derive any nutritive value therefrom.

Four samples of candies analyzed were found to be mislabeled, in that they were labeled and colored so as to deceive and mislead the purchaser into the belief that they were colored and flavored by the use of fruit juice or extract, whereas such fruit juice or extract was not used; but the color was imparted to the candy by the use of a coal-tar color, such fact not being declared on the label.

Seventy per cent of the candies examined were found to contain no poisonous or other ingredients in violation of the law. It is true that some were made from cheaper material than others, but the materials were not in any case objectionable, and were allowable under the California Pure Food laws.

FLAVORING EXTRACTS.

Material Labeled.	No. Adulterated.	No. Misbranded or Mislabeled.	No. Adulterated and Mislabeled.	No. not in Violation of California Pure Foods Act.	Total.
Lemon extract	2		6	1	9
Vanilla extract			5	4	9
Strawberry extract			3		3
Orange extract			2		2
Pineapple extract			2	1	3
Cherry extract			2		2
Banana extract			1		1
Raspberry extract			1	2	3
Totals	2		22	8	32

It may be said that the above tabular statement presents but the beginning of an extended investigation of the flavoring extracts sold in our State. As previously stated, the policy of the laboratory is to investigate each kind of food or food product as fully as possible. In accordance therewith, it is the intention to continue the examination and analysis of as many samples of flavoring extracts as can be officially obtained.

It is to be hoped that a more extended investigation of the extracts sold in the State will result in a more favorable showing than is here presented. As will be seen, only 25 per cent of the number sent to the laboratory were found not to be in violation of the law; practically 75 per cent were found to be adulterated and mislabeled. The adulterations consisted, in the main, of coloring matter added to conceal inferiority and imitation. In some instances the percentages of different ingredients were below the standards of purity for such materials as proclaimed by the Secretary of Agriculture in Circular 19.

WHEAT FLOUR.

Material.	No. Adulterated.	No. Misbranded or Mislabeled.	No. not in Violation of California Pure Foods Act.	Total.
Flour			28	28

The object of the examination of samples of flour was to ascertain their comparative richness in nitrogenous ingredients. The analyses were made at the request of the Superintendent of the State Hospital, and the results were used as a basis of purchase of the flour supplied to the respective hospitals.

The collected data indicated a great difference in the percentage of total protein. Of the four samples submitted by one of the institutions, the protein ranged from 6.06 per cent as a minimum to 9.71 per cent as a maximum, thus showing the advantages of having the flour analyzed. When considering the total number (28) examined, it was found that the minimum percentage of protein was 6.06 and the maximum 10.24, a difference of 4.18 per cent. The average for all being 8.95 per cent.

When the facilities of the laboratory shall have been increased as it is hoped they soon will be, it is the intention to fully and completely examine all food supplies submitted or used at the different State hospitals.

UNFERMENTED GRAPE JUICE.

Material.	No. Adulterated.	No. Misbranded or Mislabeled.	No. not in Violation of California Pure Foods Act.	Total.
Grape juice			6	6

Six official samples of different kinds of unfermented grape juice were submitted to the laboratory for analysis. None of these were found to be either adulterated or mislabeled, all being fully up to the requirements for such a food product.

ICE CREAMS.

Material.	No. Adulterated.	No. Misbranded or Mislabeled.	No. not in Violation of California Pure Foods Act.	Total.
Ice cream	18		14	32

The standard for ice cream as proclaimed by the Secretary of Agriculture is as follows:

Ice cream is a frozen product made from cream and sugar, with or without a natural flavoring, and contains not less than fourteen (14) per cent of milk fat.

Fruit ice cream is a frozen product made from cream, sugar, and sound, clean, mature fruits, and contains not less than twelve (12) per cent of milk fat.

Nut ice cream is a frozen product made from cream, sugar, and sound, nonrancid nuts, and contains not less than twelve (12) per cent of milk fat.

It is to be regretted that of the thirty-two samples tested, only fourteen, or about 44 per cent, could be considered as meeting the requirements of the standards of purity just indicated.

The adulteration in most cases was not in the addition of any deleterious or injurious material, but because the fat content was lower than the required standard, 14 per cent, which, in accordance with subdivision 1, section 4 of the California Pure Foods Act, constitutes adulteration.

From a hygienic standpoint there is no objection whatever to the addition of a small amount of gelatine to ice cream; but when such additions are made, the fact must be stated on the label in order to conform to the provisions of the law. Similarly with respect to the addition of allowable coloring matter to ice cream.

MACARONI.

Material.	No. Adulterated.	No. Misbranded or Mislabeled.	No. Adulterated and Mislabeled.	No. not in Violation of California Pure Foods Act.	Total.
Macaroni		2	4	8	14

Fourteen samples of this manufactured product were collected by the inspectors and forwarded to the laboratory, some from San Francisco and Oakland, and some from Los Angeles. Two of the samples were mislabeled, in that they were so labeled as to mislead the purchaser into the belief that the package contained twenty-five pounds, whereas by actual weight the contents were found to be less than twenty pounds. In four samples adulteration and mislabeling were encountered. This was due to the fact that the macaroni was colored so as to conceal inferiority. The coloring being used to imitate macaroni which has been colored by the use of eggs, whereas in the samples in question no eggs were used at all, but the color present in the macaroni was imparted to it by the use of a coal-tar color, such fact not being declared on the label. Fifty-seven per cent of the samples collected were not in violation of the law. It may be said at the present writing that there is very little macaroni, if any, now sold in the State which is not properly labeled both as to weight and color.

MEATS AND MEAT-FOOD PRODUCTS.

Material.	No. Adulterated.	No. Misbranded or Mislabeled.	No. not in Violation of California Pure Foods Act.	Total.
Frankfurters	5		4	9
Bologna	5	1	3	9
Sausage, pork	1	1	2	4
Hamburger steak	6			6
Meat for bologna			2	20
Totals	17	2	11	30

It was the aim of Congress, by the passage of the National Pure Food Act of June 30, 1906, to insure to the consumer foods and food products honestly labeled and free from adulteration; and to the honest manufacturer, protection from undesirable competition of those who, in various ways, were sophisticating their products.

In order to best attain these ends, it is absolutely essential that there shall be active and efficient coöperation between the State and the Federal laboratories. The national law deals only with imported foods, or with foods and food products manufactured in one State and sold in another; it can not exercise any supervision with reference to foods and food products manufactured and sold only in the same State, hence the necessity for the State law, and the establishment of the State laboratory.

Naturally, it is not possible, during the first few months of the laboratory's existence, to correct all the evil influences arising from food and drug adulteration. The seemingly most important infringements are first taken up, and it appears to those in charge of the work that one of the most imperative needs is to remedy the evils of the adulteration of meats and meat products. This is not only important for the protection of the consumer, but it is of vital interest to the honest manufacturer, and particularly to those who are interested in meats and meat-food products intended for interstate commerce. These people are under Federal inspection, and without the coöperation of the State would be forced to submit to competition of those within the State who are not under such inspection, because the latter do not send their goods outside of the State.

In accordance with the above statements, a number of samples of meats and meat-food products were collected, and analyzed results of these analyses showed that adulteration is extensively practiced. The materials used for this purpose are chiefly borax and sulphur dioxid, neither of which preservatives is allowed to be used in meats and meat-food products.

The table showing the results of the examinations indicates that nine samples of "frankfurters" were collected and five found to be adulterated, the adulteration in every instance consisting in the addition to the meat of the preservative boric acid or borax. Five samples of bologna sausage out of nine samples submitted contained boric acid.

When the new meat inspection law first went into effect there was a great hue and cry by the butchers as to the impossibility of making these meat-food products without the use of such preservatives. As an illustration, the following excerpt from a lecture* by the Hon. Geo. P. McCabe, Chief Solicitor for the Department of Agriculture, may not be out of place:

> Few people are aware that no preservative or chemical other than common salt, sugar, wood smoke, vinegar, pure spices, and saltpeter, may be used in any meat or meat-food product bearing the legend "U. S. Inspected and Passed." A wonderful revolution in this matter has been accomplished, quietly but effectively, within the last five months. The former practice can best be illustrated by a remark made by a small packer to the Secretary of Agriculture. In discussing the subject of preservatives in sausage, he said: "Mr. Secretary, what is reasonable is reasonable. What I want to use is a little borax, a little salicylic acid, a little anilin dye, and a little preservaline, and I can make sausage all right." He is making sausage now without using any of these substances.
>
> I have been told by the attorney for one of the largest food interests in the United States, that when a certain manufacturer of sausage was informed that the Department had forbidden the use of preservatives he replied: "That does not affect me. I do not use any preservatives." His informant continued that the Department had forbidden the use of borax, at which he exclaimed: "Heavens! My business is ruined."

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*U. S. Department of Agriculture, Bureau of Animal Industry, Circular No. 101, page 9.

Evidently some butchers of this State agree to a certain extent with some of the opinions expressed in the above quotation. At the recent meeting of the State Board of Health it was openly stated by some butchers that it was impossible to take fresh meat, grind it as for "Hamburger steak," place the same in the refrigerator after grinding, and have meat so prepared in an edible condition at the close of the day. It was a further contention of these butchers that it was a better proposition for the general public to add some preservative, and thus prevent decomposition, than to run the risk of the meat's spoiling, and causing digestive disturbances if it were consumed. The Board of Health, however, did not share in these opinions, and in order to settle this question, the following experiment was carried out at the State laboratory.

Twenty pounds of fresh beef (round steak) were purchased on Monday, July 13, 1908, at 9 A. M. This was brought to the laboratory, put through a meat chopper, placed on an eighteen-inch graniteware platter, and set in the refrigerator at 11, the temperature of the refrigerator being 50°F. At 5 P. M. of the same day there was nothing objectionable in any way with reference to this chopped meat, either in odor, color, or taste. The next morning, July 14th, at 11 A. M., about one pound was removed from the platter by one of the assistants, taken to her home, and cooked as Hamburger steak usually is. The statements of the persons who partook of this meat were that it was absolutely unobjectionable in every way. At 6 P. M. of the same day four pounds of the meat were taken from the platter, divided into two portions, and cooked at two different homes, again the verdict being that there was nothing objectionable in any way—that it was just as good chopped meat as any member of the respective households had ever eaten. It is thus seen that the meat was in a perfectly edible condition thirty hours after being placed in the refrigerator. On July 15th, at 1 P. M., the remainder of the meat, fifty hours after it had been placed in the refrigerator, was used at the bacteriological laboratory for making bouillon. This proves that the meat was in good condition, as otherwise it could *not* have been used for bacteriological preparations. In fact, it was stated by those in charge of the bacteriological laboratory that the meat was, even then, in an edible condition.

It is thus seen that there is no foundation for the opinions expressed by the butchers at the meeting above referred to. It is true that the use of certain preservatives will give a more uniform color to meat, not retaining the original meat color, but giving a new, and as above stated, a more uniform, color.

With reference to the change of color in meat on standing, it may be said that after a few hours in the refrigerator the color on the exterior of a mass of chopped meat will be slightly different from that just below the surface of the mass. But this change is not objectionable from a physiological point of view, and does not indicate any deterioration whatever in the food value of the meat. The public should be educated to the fact that an absolutely uniform color in a mass of chopped meat is not an indication of the high quality or freshness of such meat.

It should be emphasized that this whole matter is not a question of opinion, but a question of law, and the law states very definitely that "No preservative or chemical other than common salt, sugar, wood smoke, vinegar, pure spices, and saltpeter, may be used in any meat or meat-food product."

UNSWEETENED CONDENSED MILK.

Material.	No. Adulterated.	No. Misbranded or Mislabeled.	No. not in Violation of California Pure Foods Act.	Total.
Milk—condensed	15		3	18

The subject of condensed milk has been one which has provoked a great deal of discussion during the last few months. The standard purity for such a product proclaimed by the Secretary of Agriculture is as follows:

Condensed milk, evaporated milk, is milk from which a considerable portion of water has been evaporated and contains not less than twenty-eight (28) per cent of milk solids, of which not less than twenty-seven and five tenths (27.5) per cent is milk fat.

The contention of most of the manufacturers of this article is that they can not profitably meet the above requirements, and in view of their objections the committee on standards recommended that there be no State prosecutions in cases where the standards of purity were not fully met, provided the fat content was 7.7 per cent. In view of such a recommendation, this laboratory did not take any official action on the samples which were submitted to the laboratory. In accordance, however, with advices from Washington, it would appear that the standards as given in Circular 19 have not been in any way altered, consequently in the very near future official samples of unsweetened condensed milk being sold in this State will be collected and examined in the usual manner. It will be noticed from the table that of the eighteen samples examined, only three could be considered as meeting the requirements, both as to the content of fat and total solids. If the fat content alone were considered, then seven would be classed as not being in violation of the law.

The adulteration in this case does not consist in the addition to the milk of any deleterious or injurious ingredients, but is due to the fact that the milk is inferior to and has a lower nutritive value than has a condensed milk which fully meets with the requirements of the law. The law requires for such a condensed milk, that it shall contain at least 7.7 per cent of butter fat. This figure should be regarded as the minimum fat percentage which condensed milk should contain, and not as the maximum.

PREPARED MUSTARD.

Material.	No. Adulterated.	No. Misbranded or Mislabeled.	No. not in Violation of California Pure Foods Act.	Total.
Mustard—prepared	11			11

The examination of eleven samples of prepared mustard, as indicated in the tabular statement, demonstrates that all were below the required standard of purity, thus indicating inferiority and thereby constituting adulteration. The deficiency was particularly noticeable with reference to the content of protein. Some samples, however, contained an excessive amount of starch.

OILS.

Material.	No. Adulterated.	No. Misbranded or Mislabeled.	No. not in Violation of California Pure Foods Act.	Total.
Oils—olive			6	6
Oils—salad (cotton seed)			2	2
Totals			8	8

As will be seen by the results here presented, there were no cases of adulteration or mislabeling found in connection with the eight samples of oil analyzed. It is to be hoped that the results of the proposed examination of a large number of samples will be as satisfactory. Heretofore, the adulteration of olive oil has consisted of the addition of cheaper vegetable oils, such as cotton seed, peanut, sesame, etc. In such cases as these, for domestic purposes, such as salad dressings, etc., the adulterant is not to be considered as harmful. At the same time it is fraudulent, for the reason that the cost of the product is far less in the case of the adulterants than for olive oil. For medicinal purposes, the addition of such an oil to olive oil might be injurious.

PICKLES.

Material.	No. Adulterated.	No. Misbranded or Mislabeled.	No. not in Violation of California Pure Foods Act.	Total.
Pickles—sour		5	9	14
Pickles—sweet		4	1	5
Pickles—miscellaneous		6		6
Totals		15	10	25

An inspection of the table showing the results of examination of pickles indicates that 60 per cent of the samples submitted were either mislabeled or misbranded. Most of the violations consisted of the addition of benzoate of soda or benzoic acid, without such fact being declared on the label as required by law. The use of benzoate of soda, as previously stated, is allowed to the extent of one tenth of 1 per cent, provided a statement of such use appears on the label.

It may be stated that no injurious matters other than the preservatives were found in the pickles, the percentage of alum being minute, and not present in such quantities as to constitute an adulteration.

SAUCES.

Material.	No. Adulterated.	No. Misbranded or Mislabeled.	No. not in Violation of California Pure Foods Act.	Total.
Sauces, etc.		6	9	15
Sauces—Worcestershire		10	10	20
Totals		16	19	35

The above table does not present the results of an extended examination of sauces as sold in the State, but presents the results of the thirty-five samples received at the laboratory. Of these it will be seen that nearly 50 per cent were found to be in violation of the law, the violation in every case consisting of mislabeling, in that the fact that benzoate of soda was used as a preservative was not declared on the label of the respective bottles. These data, as in the case of pickles, represent the results of the analyses of samples submitted and not those of an extended investigation which it is hoped will be undertaken in the near future.

SOUP—CANNED.

Material.	No. Adulterated.	No. Misbranded or Mislabeled.	No. not in Violation of California Pure Foods Act.	Total.
Soups			6	6

Six samples of canned soups were received at the laboratory for examination and analyses, and the results demonstrate that they were all in accordance with the provisions of the California Pure Foods Act. This was to have been expected, in view of the fact that these canned soups are manufactured in establishments which conduct interstate traffic, and therefore are under the supervision of the Bureau of Animal Industry, United States Department of Agriculture, whose inspection is very rigid and strict.

SPICES.

Material.	No. Adulterated.	No. not in Violation of California Pure Foods Act.	Total.
Pepper—black	14	21	35
Pepper—white	5	18	23
Pepper—cayenne	4	17	21
Mustard	8	19	27
Ginger	3	11	14
Cinnamon	7	13	20
Allspice	5	11	16
Cloves	6	8	14
Nutmeg	1	14	15
Mace	5	6	11
Thyme	2	6	8
Marjoram	6	1	7
Sage	1	7	8
Savory	0	7	7
Celery		1	1
Totals	67	160	227

It will be seen that two hundred and twenty-seven samples of spices have been received at the laboratory, and of these sixty-seven, or about 28 per cent, were found more or less adulterated. The adulterations in the case of pepper consisted chiefly in the addition of cereals to the peppers, and in some few instances charcoal to black pepper. In the other instances noted, the adulterations consisted in the addition to the pure material of refuse, stems, or foreign matters. It may be said that probably 50 per cent of the spices found to be in violation of the law were not intentionally adulterated; that it was due more to carelessness in the manufacturer, or selection of original material, than to an intentional adulteration. The percentage (72) of samples not in violation of the law is not quite satisfactory, and it is confidently expected that the next examination will show a much higher percentage of pure spices.

SYRUPS.

Material.	No. Adulterated.	No. Misbranded or Mislabeled.	No. Adulterated and Mislabeled.	No. not in Violation of California Pure Foods Act.	Total.
Syrups—flavoring	1	7	21	7	36
Syrups—maple			3	1	4
Table syrup				4	4
Totals	1	7	24	12	44

As will be seen by inspection of the above tabulated data, the most of the adulterations of the syrups were found among what are called "flavoring syrups," used for soda waters. The sophistication in most of these cases was due to the coloring of the syrups by coal-tar dyes, such facts not being declared on the label, and similarly with reference to artificial flavors. In seven of the samples, benzoic acid was detected, and the presence of such material was not indicated on the label.

It is the intention of the laboratory in the near future to make an extensive series of analyses of the different syrups sold in the State. The results presented herewith are upon eight samples of the table and maple syrups which were submitted to the laboratory. It will be seen that of the table syrups none were in violation of the law, while in the case of the maple syrups only one was in accordance with the law, and three were mislabeled, in that they contained cane sugar and glucose, such facts not being declared on the label.

VINEGARS.

Material.	No. Adulterated.	No. Misbranded or Mislabeled.	No. not in Violation of California Pure Foods Act.	Total.
Vinegar—cider		9	17	26
Vinegar—malt		6	2	8
Vinegar—wine		2	2	4
Vinegar—distilled		5	22	27
Vinegar—miscellaneous	1	1	4	6
Totals	1	23	47	71

Seventy-one of the vinegars, chiefly from the Bay regions, were analyzed during the spring of the year, and the results show that twenty-four, or a little over one third, of the samples collected were in violation of the California Pure Foods Act. The analyses uniformly showed that there were no injurious or deleterious additions to the vinegars; that the violations were in every case, with one exception, that of mislabeling. The distilled vinegar would be labeled a "malt vinegar" or a "cider vinegar," etc. As far as the strength of the acid is concerned one is probably as good as the other, depending entirely upon the percentage of acid found; but the mislabeling is certainly a fraud, in that it is much more expensive to manufacture a cider vinegar than a distilled vinegar.

MISCELLANEOUS.

Material.	No. Adulterated.	No. Misbranded or Mislabeled.	No. not in Violation of California Pure Foods Act.	Total.
Lard			2	2
Parafo			3	3
Pork and beans			1	1
Rusk, Holland		1		1
Salt			2	2
Sugar	1		2	3
Whisky			1	1
Wine			6	6
Totals	1	1	17	19

Nineteen miscellaneous samples have been received, and it was thought best to group them in one tabular statement in place of making a separate one for each different kind of material received. The showing made is very satisfactory, there being only two out of the fourteen which were in violation of the law. One of these was a sample labeled "Sugar Crystals," which consisted of saccharine, there being no sugar in the material. The other instance of the violation was that of the "Holland Rusk," in which case the violation consisted in mislabeling, in that the sample was so mislabeled as to mislead and deceive the purchaser. It will be noticed that only one sample of whisky has been examined. It was deemed best to defer the extended investigation of whisky until a later date in view of the more urgent calls upon the laboratory along other lines.

Parafo is a material consisting mainly of beef stearin, which is used in place of paraffin. The use of this latter material is prohibited in the manufacture of candies, and parafo has been offered as a substitute. The three samples examined indicate that this material is non-injurious and does not contain any unsaponifiable matter.

SUMMARY OF ANALYTICAL WORK.

The following table summarizes the analytical work of the State laboratory for the period of seven months, January 1st to August 1st. The inspection of the data indicates that, of the fourteen hundred samples received, nine hundred and eighty-nine have been examined with the results that 20.9 per cent are adulterated, 9.0 per cent mislabeled or misbranded, 13.0 per cent both adulterated and mislabeled, and 57.1 per cent not in violation of the California Pure Foods Act. This showing is not as satisfactory as it should be, and therefore emphasizes the necessity for thorough and comprehensive inspection of all classes of foods and food materials. It may be observed that there are a number of foods and condiments which have not been even noted in the table. This is not due to any failure to realize the importance or nutritive values of such articles, but because the laboratory force is so limited that the analyses of the official samples submitted did not permit of any further work along other lines.

It will also be seen that no mention is made of drugs. It should not, therefore, be understood that the absence of such a report signifies that the importance of drugs is in any way underestimated; far from it, but there appeared to have been a far more urgent call for the examination of foods. During the coming year, however, it is intended to devote considerable time to the testing of drugs.

TABLE SHOWING SUMMARY OF ANALYTICAL WORK.

January 1 to August 1, 1908.

Material.	No. Adulterated.	No. Mislabeled.	No. Adulterated and Mislabeled.	No. not in Violation of California Pure Foods Act.	Total.
Baking powder				6	6
Beers		3		35	38
Beverages	10	2	79	35	126
Bread				3	3
Butter		8			8
Buttermilk				2	2
Catsup	1	4		11	16
Coloring matter	24			13	37
Confectionery	40	4		103	147
Extracts	2		22	8	32
Flour				28	28
Grape juice				6	6
Ice cream	18			14	32
Lard				2	2
Macaroni		2	4	8	14
Meat and meat-food products	17	2		11	30
Milk—condensed	15			3	18
Mustard—prepared	11				11
Oils—olive				6	6
Oils—salad (cotton seed)				2	2
Parafo				3	3
Pickles		15		10	25
Pork and beans				1	1
Rusk—Holland		1			1
Salt				2	2
Sauces, etc.		6		9	15
Sauces—Worcestershire		10		10	20
Soups				6	6
Spices	67			160	227
Syrups—flavoring	1	7	21	7	36
Syrups—maple			3	1	4
Syrups—table				4	4
Sugar		1		2	3
Vinegar	1	23		47	71
Whisky				1	1
Wine				6	6
Totals	207	88	129	565	989

CONCLUSION.

The foregoing data clearly emphasize the necessity for continued, thorough and comprehensive food and drug inspection and analyses. In order that such examination of foods and drugs be properly maintained, it is very essential that more and extended facilities, both as to room and assistance, should be afforded, than those at present at the command of the Director of the laboratory. The advantages of having such a laboratory situated at the University of California are many, and are fully appreciated by the State Board of Health.

With the enlarged laboratory resources and apparatus, important studies and research work could, with very little additional expense, be most profitably conducted. Prominent among the desirable investigations, is that of chemically analyzing and reporting on the waters of the several mineral springs of the State. As is well known, many of these are exceedingly valuable medicinally, others are valuable as table waters. It would, therefore, appear that a bulletin published by the State Board of Health and containing results of such an investigation would be a valuable scientific contribution to the knowledge of the subject, and at the same time be of great moment to the State of California.

Another line of work which should most certainly be carried on in the laboratory of the State Board of Health is that of nutrition investigations. Studies in infant nutrition seem to be most urgently called for; particularly is this so in view of the fact that such experiments are not being conducted to any extent at any of the institutions in the country. The extreme and vital significance of the carefully planned and scientifically conducted metabolism experiments on infants can not be overestimated. It is to be hoped in the near future that the State laboratory will be so enlarged and equipped that profitable results along the lines indicated may be achieved.

TWENTY-FIRST BIENNIAL REPORT

OF THE

STATE BOARD OF HEALTH

OF

CALIFORNIA

FOR THE

Fiscal Years from July 1, 1908, to June 30, 1910

SACRAMENTO:
W. W. SHANNON, : : : : SUPERINTENDENT STATE PRINTING.
1910.

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MEMBERS OF THE STATE BOARD OF HEALTH.

Martin Regensburger, M.D., *President*	San Francisco.
W. Le Moyne Wills, M.D., *Vice-President*	Los Angeles.
William F. Snow, M.D., *Secretary*	Sacramento.
F. K. Ainsworth, M.D.	San Francisco.
Wallace A. Briggs, M.D.	Sacramento.
James H. Parkinson, M.D.	Sacramento.
O. Stansbury, M.D.	Chico.

OFFICIAL STAFF.

William F. Snow, M.D., *Executive Officer and State Registrar*	Sacramento.
Jonh F. Leinen, *Chief Clerk*	Sacramento.
Hon. J. E. Gardner, *Attorney for the Board*	Watsonville.
George D. Leslie, *Statistician, Bureau of Vital Statistics*	Sacramento.
M. E. Jaffa, M.S., *Director, Food and Drug Laboratory,*	University of California, Berkeley.
W. A. Sawyer, M.D., *Director, Hygienic Laboratory,*	University of California, Berkeley.
Raymond Russ. M. D., *Director, Bureau Public Health Information*	San Francisco.

REGULAR MEETINGS.

The California State Board of Health meets regularly the first Saturday of each month, but the stated meetings of January, April, July, and October constitute the quarterly meetings required by law to be held at the Capital of the State.

By courtesy of the University of California the Food and Drug Laboratory and the Hygienic Laboratory are located in University buildings at Berkeley, California.

Address all communications to the SECRETARY, Sacramento, California.

LETTER OF TRANSMITTAL.

OFFICE OF CALIFORNIA STATE BOARD OF HEALTH,
SACRAMENTO, September 15, 1910.

To His Excellency, JAMES N. GILLETT,
Governor of California.

DEAR SIR: In accordance with the state law, I herewith transmit to you the twenty-first Biennial Report of the State Board of Health of California for the sixtieth and sixty-first fiscal years.

Respectfully submitted.

W. F. SNOW,
Secretary of State Board of Health.

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THE PRINCIPAL DUTIES AND POWERS OF THE STATE BOARD OF HEALTH, AS ENUMERATED IN THE LAWS OF CALIFORNIA.

The legislature shall provide, by law, for the maintenance and efficiency of a state board of health.—*Constitution of California, Article XX, Sec. 14, 1879.*

A. Investigation Duties.

1. "The State Board of Health shall examine into the causes of communicable diseases in man and domestic animals occurring or likely to occur in this State."
2. "It shall cause special investigation of the sources of mortality and the effects of localities, employments, conditions, and circumstances on the public health; the preparation and sale of drugs and food and the adulteration thereof."
3. "* * * These statistics (births, marriages, and deaths), together with the number of cases of communicable diseases, and such further comparative statistics and information as may be deemed of value to scientists, the medical profession, the general public, and aid in the maintenance of good health conditions, may be published by the board in such manner and at such times as it may deem proper."
4. "It shall examine and have power to prevent the pollution of sources of public domestic water and ice supply."
5. "The board must examine into and report what, in their best judgment, is the effect of the use of intoxicating liquor as a beverage upon the industry, prosperity, happiness, health and lives of the citizens of the State * * *."

B. Specified Administrative Duties.

"It shall maintain a bureau of vital statistics, under the supervision of its executive officer, where shall be collected and recorded all births, marriages, and deaths, burials, and cremations within the State * * *."

"It shall have sanitary control of all public buildings or places owned, leased or controlled by the state, and no officer or person having charge of the erection of any public building owned or controlled by the state shall proceed with the construction thereof until the State Board of Health shall, in writing, have approved the plans and specifications therefor, in so far as the same may, in any way, affect the sanitation thereof."

"It must perform such duties as are or may be required by law for the detection and prevention of the adulteration of articles used for food and drink, and for the punishment of persons guilty of violation of any law providing against such adulteration."

"The Board must meet at the capital of the State at least once in every three months."

"It shall at each biennial session of the legislature make a report with such suggestions as to legislative action as it deems proper."

C. Discretionary Administrative Powers and Duties.

"It (the board) shall have power to prepare or purchase and distribute at cost, antitoxins, vaccine, and other approved serums and lymphs."

"It may establish and maintain places of quarantine or isolation."

"It shall have power to abate public nuisances."*

"It may advise all local health authorities, and, when in its judgment the public health is menaced, it shall control and regulate their action."

"It shall have general power of inspection, examination, quarantine, and disinfection of persons, places, and things within the state, and for the purpose of conducting the same may appoint inspectors, who, under the direction of the board, shall be vested with like powers; *provided*, that this act shall nowise conflict with the national quarantine laws."

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* Anything which is injurious to health, or is indecent, or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property by an entire community or neighborhood, or by any considerable number of persons, or unlawfully obstructs the free passage or use in the customary manner of any navigable lake, or river, bay, stream, canal, or basin, or public park, square, street, or highway is a public nuisance. (Penal Code, Section 370.)

"It may quarantine or isolate, inspect and disinfect persons, animals, property and things of whatever nature, and houses, rooms, places, cities or localities, whenever in the judgment of said board or pending its meeting, whenever in the judgment of its executive officer such action shall be deemed necessary to protect or preserve the public health; and said board may destroy, or cause to be destroyed, bedding, carpets, household goods, furnishing and materials, clothing or animals, when in the judgment of said board, or that of its executive officer, such clothing, furnishings, bedding, goods, materials or animals are an imminent menace to the public health."

D. General Powers.

"It (the board) shall have power to adopt and enforce rules and regulations for the execution of its duties under this section."

"It shall have power to prescribe and enforce regulations for the embalming, cremation, burial, disinterment, and transportation of the dead."

"It shall have power to prescribe the form of certificates of birth and death, and of permits for burial, disinterment, cremation, and transportation of the dead, and provide measures for their observance; and whenever the board, or when it is not in session, its secretary, shall so order, no burial permit shall be issued until after the body has been inspected by the State Board of Health, or some one designated by it or its secretary for the purpose."

"It shall have power to commence and maintain all proper and necessary actions and proceedings to enforce its regulations, to enjoin and abate nuisances dangerous to health, to compel the performance of any act specifically enjoined upon any person, officer or board, by any law of this state relating to the public health, and to protect and preserve the public health; also to defend all actions nal proceedings involving its powers and duties; and in all such actions and proceedings it shall sue and be sued under the name of the State Board of Health."

GENERAL REPORT OF THE BOARD.

SACRAMENTO, CALIFORNIA, September 15, 1910.*

His Excellency, JAMES N. GILLETT,
Governor of California, Sacramento, California.

DEAR SIR: The California State Board of Health takes pleasure in this opportunity to present to you a brief summary of the work performed during the past two years.

CHANGES IN THE PERSONNEL OF THE BOARD.

Since the last report two changes have occurred in the personnel of the Board. Dr. A. C. Hart has been succeeded by Dr. James H. Parkinson of Sacramento, and Dr. N. K. Foster by Dr. William F. Snow of Stanford University. The Board was reorganized June 26, 1909, by the reëlection of President Martin Regensburger, and Vice-President Dr. W. Le Moyne Wills, and the election of Dr. William F. Snow as Secretary to fill the vacancy caused by the resignation of Dr. N. K. Foster. With these two exceptions, the members of the Board have served continuously since April 1, 1903. The membership of the Board now consists of: Dr. Martin Regensburger of San Francisco, Dr. W. Le Moyne Wills of Los Angeles, Dr. Wallace A. Briggs of Sacramento, Dr. F. K. Ainsworth of San Francisco, Dr. O. Stansbury of Chico, Dr. James H. Parkinson of Sacramento, and Dr. William F. Snow of Stanford University.

FORMER SECRETARY N. K. FOSTER.

When Dr. N. K. Foster suggested to the members of the Board and to the Governor in June that he was seriously considering the advisability of resigning on account of personal affairs which he felt could no longer be sacrificed without serious injustice to his family, a difficult situation presented itself. Dr. Foster had been the Board's executive officer for seven years. Under his energetic, tactful management the work had grown enormously both in amount and importance, and he was the only member thoroughly familiar with every section of the State. The Board was at a loss for the suggestion of a member who could be counted upon to fill the secretaryship successfully in the event of Dr. Foster's resignation. At the same time, the members of the Board did not believe that they could unduly urge Dr. Foster to continue as Secretary at a great personal sacrifice. After several conferences with Dr. Foster and the Governor, it was decided that Professor William F. Snow of the Department of Hygiene and Public Health of Stanford University, should be invited to accept the appointment, or at least to serve temporarily until a permanent successor could be selected. Governor Gillett formally requested President Jordan to obtain from the trustees of Stanford University a leave of absence for Dr. Snow in accordance with this plan. This was granted and the transfer of the secretaryship was made, as stated above, on June 26, 1909.

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*The statistics given in this report have been corrected immediately before leaving the press, in order to cover correct deductions for the whole of 1910.

It is impossible within the limitations of this report to express the full appreciation and esteem in which the members of the Board, and the citizens of the State generally, held Dr. Foster. California was the second state in the Union to establish a board of health, and its first board was composed of remarkably efficient and broad-minded men. But in succeeding years the board's influence became gradually impaired through the secretaryship becoming a political sinecure. In 1903 the State reached a crisis in its public health history. The existence of bubonic plague had been denied by the Governor and the State Board of Health until an interstate quarantine was imminent. It was under such trying circumstances that the present Board of Health was appointed and Dr. Foster assumed the duties of its executive officer. His first duty was to proceed to Washington and convince the assembled officers from the several states that California realized the mistaken policy that had been previously pursued, and that adequate measures would be immediately instituted to control the plague. In this mission he was successful, and the quarantine against California was never instituted.

On his return from Washington, Dr. Foster began the executive work entailed by the many and difficult activities which the new board at once instituted. In large measure the fact that California became a registration State (of which there are now only eighteen in the entire registration area in the United States) is the result of his persistent efforts during the first two years of his incumbency. All that a man of high purpose, untiring energy, and enthusiasm for his work can accomplish Dr. Foster accomplished as the executive officer of the board from 1903 to 1909.

MINUTES OF STATE BOARD OF HEALTH.

The minutes of the board for the biennial period from July 1, 1908, to June 30, 1910, show a multiplicity of subjects presented for consideration. During this period the board held twenty-four meetings, with an average of four hours devoted to each session.

Considerable time each month has been devoted to pure food and drug hearings, and to the discussion of new phases of the laws regulating the adulteration and misbranding of foods and drugs.

The correspondence of the board has greatly increased, and many important subjects have been referred to the Board at its meetings for rulings. Much of the work has been accomplished through temporary committees appointed to investigate and report on special problems.

THE SANITARY CONDITION OF STATE INSTITUTIONS.

During the past two years the Board has inspected, through its president, members or inspectors, the sanitary conditions of the various state institutions for the insane, feeble-minded, blind, prisoners, etc., and the state schools. The commissions and boards of control of these institutions without exception are desirous of maintaining a high standard of sanitary efficiency but many of them have to contend with serious handicaps in the use of old buildings, poor plumbing, bad lighting and ventilation, and in overcrowding. No categorical report on these institutions would be fair to their managements without an accompanying history of their efforts to obtain appropriations for modern equipment and increased accommodations. The Board desires to strongly commend on the whole the attention given to health conditions at our state institutions, and to urge careful consideration of requests for appropriations covering new sanitary improvements.

THE SECRETARY'S REPORT.

The Secretary's report published herewith includes a summary of many important activities of the board. During the past two years the general death-rate has been reduced from 14.6 deaths per 1,000 of population in 1907 to 13.4 for 1909 and a forecast of 13.4 also for 1910. This means a saving of at least 1.2 lives in each 1,000 of our population, or something over 3,000 persons saved in 1910 who would have died had the death-rate of 1907 continued. This great saving of life has resulted from the combined efforts of citizens, commercial bodies, welfare associations, local and state departments of government, and is most significant of what can be accomplished in the future by increased attention to health conservation and to effective coöperation among the citizens and their representative organizations.

This actual saving of lives has an added significance in that it implies also a great reduction in the total number of persons incapacitated for work or enjoyment of life through illness. Typhoid fever, for example, is now causing 200 less deaths a year than it did four years ago, but this means also some 2,000 less cases of typhoid fever per year.

There are many ways of estimating the importance of such results of health conservation, but inasmuch as all outlay for such work is estimated in dollars and cents, these results may be likewise so interpreted. The average cost of a typhoid illness may be estimated at $300; the National Conservation Commission estimated the average loss due to a death at $1,700; upon this basis the saving on typhoid fever alone is something like $1,000,000 per year as compared with the expense of this disease indicated by the death-rate of 1907.

Between the years 1907–1910 the population of the State has increased over 250,000, yet the total number of deaths for 1910 only 1,000 more than in 1907, instead of 3,000, as would have been expected according to the 1907 death-rate. It is probably a conservative estimate to say that such figures, aside from the priceless saving of life and health to those who would have died, represent a commercial saving to the State of $5,000,000 annually. These figures are merely quoted in illustration of the importance of the great work upon which the State Board and other official and lay health organizations are engaged.

As outlined in the Secretary's report, the vital statistics and morbidity returns of local boards of health are made the basis of the epidemiological work of the State Board, and adequate equipment and operating expense must be available to render the work most efficient.

THE SANITATION EXHIBIT.

The most effective instrument for enforcing public health laws is popular education, which leads to voluntary compliance with regulations. During the past two years the board has directed its efforts largely in the direction of demonstrating to the citizens of the State the need for supporting their local health boards and officers in the enforcement of local ordinances and the state laws. Lectures, exhibits, and printed pamphlets, etc., have been used in the usual ways found valuable in the experience of other states. Every effort has been made to coöperate with and give prominence to the valuable work of the various welfare organizations of California. The distinctive feature of this campaign has been the development and use of a general sanitation exhibit covering statistically, financially, by pictures, charts, and by models the preventable losses from all the communicable diseases.

This exhibit was housed in a special railway car and transported over all the railway systems of the State. In many instances the broad gauge electric lines carried the car to centers of population not otherwise accessible. California is more than 1,000 miles long and 200 miles wide by lines of travel. This fact must be realized in order to appreciate the importance of the coöperation of these railroad companies. The Southern Pacific Company provided a modern passenger coach and had it equipped with tables and wall boards in its shops. For a year this company generously tranferred this exhibit—the "sanitation car" it came to be styled by the trainmen—from town to town over its entire trackage. The demonstrators were invariably treated with consideration and their desired schedules immediately accepted by the train dispatchers. Whenever the car reached a division point it was specially cleaned, windows washed, gas tanks refilled, etc., without expense to the Board. These details are here mentioned both in acknowledgment of the generosity of this company and for emphasis of the fact that without this solution of the transportation problem the board could not have proceeded with this important educational campaign. The Santa Fe Company, the Pacific Electric Company of Los Angeles, and the San Jose-Los Gatos Electric Company of San Jose placed their lines at the disposal of the board for the purpose of reaching sections of the State not directly on the lines of the Southern Pacific.

The Secretary has described the details of this exhibit in his report. During the year more than 100,000 people visited this exhibit or attended the lantern demonstrations given in the public parks at night by the demonstrators accompanying the car. Except for the keen interest of Governor Gillett in the problem of improving the sanitation of the rural districts of the State, the expenses of the demonstrators could not have been financed. These demonstrators for the most part contributed their time without salary. In addition to contributing his time for supervising the construction and in planning the exhibit, Professor Snow of Stanford University acted as director without salary during the trial trips of the first two months. Professor Long also contributed his services as chief demonstrator and afterward as director for three months without salary. To these enthusiastic workers and others the board is much indebted.

RELATIONS OF BOARD TO COUNTY HEALTH OFFICERS.

It has been the policy of the board to make the office of the Secretary a bureau of interchange of ideas, information, statistics, and standardization of administrative methods for all the county health officers. The laboratory and inspection facilities of the State Board have been extended as far as possible to every health officer needing aid in investigating the presence and prevalence of a communicable disease in his jurisdiction, and the Secretary has given advice concerning the most effective measures to be instituted to control the conditions found.

Only in cases of intercounty or inter-town matters and in outbreaks of disease in which the local officials requested the State Board to assume charge has the Secretary been instructed to enforce administrative measures in local situations.

INVESTIGATIONS OF NEW DISEASES.

The law requires the Board to "investigate the sources of mortality and the effects of employments, localities, conditions, and circumstances on the public health." To the extent of its limited funds research in accordance with these instructions has been carried on. The special reports, several of which are printed herewith, on poliomyelitis, hookworm, the rag industry, and housing conditions, and stream pollution present many important suggestions for legislation and further investigation. The Board desires to take this opportunity to specially commend to your attention the generous and efficient volunteer services of Dr. Herbert Gunn, who has spent considerable time, at a personal sacrifice, in investigations of the distribution and prevalence of hookworm in California; Dr. F. F. Gundrum, who has been in charge of the Board's investigations of poliomyelitis; Professor R. R. Long and Miss W. R. D. Randall, who carried on the special investigations of the Board in the rôle of rags, secondhand furnishings, etc., in the transmission of disease in tenement houses, and labor agencies; Professor W. B. Herms, who has made a thorough study of mosquito-eradication in certain sections of the State and has rendered valuable aid in the study of the malaria problem; Miss Ora Boring, who has entered the educational work of the Board as special lecturer. All these, and to a less extent other citizens, have devoted much time and skill to special problems confronting the Board, and for which there has been no money with which to employ investigators.

RELATIONS WITH STATE UNIVERSITY.

Through the courtesy of the State University, the Pure Food and Drug Laboratory and the Hygienic Laboratory have been housed in buildings on the campus at Berkeley. Aside from the inconvenience and lessened efficiency in administration brought about by the wide separation of the laboratories from the executive division of the work, this plan has been greatly to the advantage of the Board and of some value to the university. The coöperation thus extended is greatly appreciated.

NATIONAL CONFERENCES.

It has been the policy of the Board to send representatives to the annual conferences on health legislation and administration. The officers delegated are able to present California's progress in health-conservation to the delegates of other states and the national departments of government, and to inform the Board as to new methods employed by these other boards. The following meetings have been regularly attended: The Conference of State and Territorial Boards of Health with the Surgeon-General of the Public Health and Marine Hospital Service; the State and Provincial Boards of Health Conference; the annual meeting of the Association of Official Agricultural Chemists.

A NATIONAL DEPARTMENT OF HEALTH.

There is a widespread demand among the citizens of the United States for a new department of federal government, which shall be known as the United States Department of Health, and shall be coördinate with the existing departments, its secretary being a member of the President's cabinet. The State Board of Health has been asked to define its attitude toward such a department. The members of the board believe there is a genuine and pressing need for federal control of certain interstate affairs and for a central department of information and research available for immediate aid to all the state health departments, and through the latter to cities or special areas facing serious epidemiological problems.

In April, 1910, the Board adopted resolutions endorsing the general principle of the Owen bill then before Congress. While a preference for this bill over others which had been presented was thus expressed, the board believed that the personnel bill for the existing Public Health and Marine-Hospital Corps should be passed at once, and that the qualifications for the secretaryship of this new department should be specified, together with the essential details of reorganization of the many existing bureaus the bill proposed to transfer to the new department. While no further action has been taken by the board, its members are watching with keen interest the development of this legislation in Washington, and are ready to endorse the bill which will finally result from the conferences of the many welfare organizations working for its consummation.

RECIPROCITY IN THE CARE OF CONSUMPTIVES.

California is especially interested in the establishment of some interstate regulations for the proper care of migrating consumptives. This is one of the problems which should be dealt with by a national department of health.

REPORTS OF DEPARTMENTS

The biennial reports of the several departments contain much valuable data, besides their usual reports of work for the past two years.

VITAL STATISTICS OF THE STATE.

The vital statistics tables have been prepared largely in accordance with the previous reports in order to facilitate comparison.

The recommendations for increased clerical assistance in handling the statistical records of births, marriages, and deaths are important. No one unfamiliar with the many legal and business uses of these records, can realize the necessity for accuracy and completeness in recording and tabulating deductions from them.

PURE FOOD AND DRUG LABORATORY.

The report of the pure food and drug laboratory, shows in conclusive terms, the necessity for continuing the work and increasing its efficiency by extension of the inspection service, either through required county coöperation or added state inspectors. The educational campaigns which have been carried on, have been most valuable aids in enlisting the coöperation of the retail dealers in enforcing the law.

HYGIENIC LABORATORY.

The hygienic laboratory has steadily increased the scope and importance of its work since its establishment, but has had the great handicap of distance and transportation expense in receiving materials and returning its findings. The majority of the work done is in a sense "emergency" work, *i.e.*, work which requires the earliest possible reply. A family anxiously watching beside the bed of a child ill, with a dangerous ulceration of the throat, realizes the disadvantages under which their physician has to work in sending the throat culture five hundred miles to the central laboratory for examination. Likewise, the health officer impatiently waiting for the laboratory reports on suspected cases of typhoid fever, realizes the disadvantages of California's geographic dimensions. To make this laboratory of greatest use to the citizens, the Board hopes to see the means provided for the establishment of the substations recommended in the department report herewith printed.

A PASTEUR INSTITUTE.

Rabies has unquestionably obtained a foothold in California, and the Pasteur treatment must be made available if deaths from this disease are to be prevented from following the bites of rabid animals. During the past year the Federal Government has furnished this treatment from its hygienic laboratory in Washington, but it is not the policy of the United States Government to indefinitely aid individual states in this way. It would be greatly to the advantage of the citizens of the State to establish their own Pasteur Institute, rather than permitting an unsupervised private institution to be developed. Dr. Frederick P.

Gay's letter published in the hygienic laboratory report emphasizes this fact.

RESEARCH WORK.

Several diseases, not previously recognized as established or prevalent in California, have been definitely on the increase since the last biennial report. Acute anterior poliomyelitis especially requires thorough and persistent investigation. Amœbic dysentery, hookworm, and other diseases better understood scientifically than poliomyelitis, have not been studied as to their epidemiological factors and geographic distribution in the State. The hygienic laboratory should be fully equipped with facilities and assistants for this most important work.

A BUREAU OF EPIDEMIOLOGY.

One of the pressing needs of public health work in California, is an adequate system of providing local officers with the knowledge resulting from a prompt and thorough investigation of the sources of infection in all serious outbreaks of epidemic diseases. Without such knowledge, it is impossible for officials to act intelligently and with assurance of success in stamping out a disease. There is not sufficient work of this nature to warrant individual counties in employing properly trained epidemiologists for this work, but in the whole State there is constantly work of this character for one or more experts. These men should be available through the State Board of Health. During the past year, the Secretary has devoted much of his time to this division of the work, and has had the services of an engineer-inspector. The report of this inspector is included herewith, and demonstrates the need for a permanent division of engineering for the Board's work.

A BUREAU OF PUBLIC HEALTH INFORMATION.

During the year the Board has made an effort to aid, through correspondence as well as by lectures and demonstrations, every community whose citizens were attempting to improve health conditions. In so far as it has been possible, special articles have been printed for distribution through the bulletin. To provide for this constantly increasing part of the work, provisional arrangements have been made whereby Medical Inspector Russ, will serve as director of this work, and editor of the bulletin. Dr. Russ has already rendered most valuable volunteer service in these directions.

FINANCIAL REPORT.

The report of the acting chief clerk gives the statistical details of the receipts and expenditures of the Board during the past two years, and some interesting data upon the volume of administrative business of the Secretary's office. There is an imperative need for the addition of a chief clerk, as a permanent officer, and of an additional catalogue for the vital statistics records.

THE ATTORNEY FOR THE BOARD.

The Board has had a large amount of business for its attorney during the past two years. In addition to the large amount of routine work connected with the pure food and drug hearings, many opinions on administrative points have been required and a number of important legal investigations have been necessitated. The legal points and testimony incident to the investigation of cold-storage practices, with special reference to eggs, required a great deal of time. The prosecution of the test case, in the enforcement of the vaccination law, is another instance of an important and extensive legal problem with which the Board has had to deal.

REPORT TO THE THIRTY-NINTH LEGISLATURE.

In accordance with the law, the Board will present to the thirty-ninth legislature, a report upon a number of changes in existing laws, and possibly may recommend several new laws designed to increase the efficiency of public health administration within the State. But the chief need of health conservation in California to-day is not new laws, but adequate appropriations.

THE GOVERNOR'S ATTITUDE.

The Board has been most fortunate in the continued and active interest of the Governor in the progress of its work. Governor Gillett believes that the health control of the State must be in the charge of competent officers who are not in any way influenced by political matters nor handicapped by unwise restrictions. In large measure the progress which has been possible in the past two years, is due to his unfailing support of the policies of the Board.

Respectfully submitted.

MARTIN REGENSBURGER, M.D.,
President.
W. LE MOYNE, M.D.
W. A. BRIGGS, M.D.
F. K. AINSWORTH, M.D.
JAMES H. PARKINSON, M.D.
O. STANSBURY, M.D.
W. F. SNOW, M.D.

REPORT OF THE PERMANENT SECRETARY.

In presenting this report upon the work of the past two years your present secretary has necessarily acted as editor for the fiscal year 1908-09, former Secretary Foster having continued in office to June 26, 1909.

CALIFORNIA'S HEALTH DURING THE PAST TWO YEARS.

Comparatively, one may say that California's health has been good during the past two years. There have been many "beginnings" of epidemics which have required hard work on the part of health officials and citizens, and have caused great anxiety for the time, but which have yielded to modern methods of fighting communicable diseases as our grass fires yield to experienced fire-fighters who are early on the spot.

Bubonic plague has been an ever present source of anxiety. At practically every meeting of the Board during the past two years, some phase of this serious problem has been discussed. Only six deaths have occurred since January, 1908, as contrasted with 82 deaths for the year 1907 alone, and the rat-population of all the bay cities has been maintained free from plague, but the squirrel-population of most of the counties bounded by the bay of San Francisco, the San Joaquin River, the Tehachapi Mountains, and the ocean, is known to be infected. The prevalence varies but sufficient foci exist in this area to make it imperative, that the State and the nation shall put forth every effort necessary to eradicate this disease from California.

Typhoid fever has cost the State the lives of 1,001 citizens during the years 1908 and 1909. Our morbidity reports are not yet reliable, but these deaths indicate upwards of 10,000 cases of typhoid, representing probably four or five thousand outbreaks which yielded to the efforts of local communities to stamp out the disease. The Board has records of several hundred such outbreaks, in which its advice or investigation has been requested. The Board should have adequate funds to enforce the stringent laws against pollution of streams and domestic water supply. Unless the State can adequately protect the mountain streams and water supplies of summer resorts, the millions of dollars being invested by the progressive cities and towns in sewers and good water supplies will be in large measure defeated. These cities will have safe water and their sewage will not endanger them, but their citizens will not be protected from disease brought in by milk and vegetables from farms in the unprotected country, nor from diseases their citizens may contract during the vacation residence in camps and hotels in the mountains.

Malaria has taken its toll of human lives amounting to 192 for 1908 and 1909, but the active growth of citizens' organizations to fight the malaria-carrying mosquito, and the open policy of encouragement adopted by the newspapers, bid fair to make this needless loss of life and attendant expense a thing of the past.

Diphtheria, whooping-cough, scarlet fever, and measles—"the little four," as they have been aptly termed in contrast to "the big five:" Tuberculosis, syphilis, gonococcus infections, malaria, and typhoid fever"—have traveled the length of the State, attacking many and leaving death for a few, but these few aggregate 1,298 for the two years 1908-1909.

Diphtheria has assumed epidemic proportions many times during these years but has of necessity yielded to the scientific methods of running it down by throat cultures and the early use of antitoxin. There were 391 deaths from dipththeria in 1908, 248 in 1909. In 1908 the outbreak at the state hospital at Patton, required much time and expense before being finally brought under control.

Whooping-cough (149 deaths, 1908 to 217 deaths 1909);
Scarlet fever (104 deaths 1908 to 69 deaths 1909);
Measles (101 deaths 1908 to 119 deaths 1909),

can not be effectively combated by the health officers until citizens themselves have created the public sentiment necessary to securing the complete and prompt reporting of all cases and suspected cases, and the strict observance of all instructions for the control of these diseases.

Tuberculosis remains secure in its lead as a cause of death and expense to the State. It has claimed 9,238 lives during 1908 and 1909. This is nine times the loss of life due to typhoid fever and seven times the combined losses from the "little four" group. The State Board can make little headway against this disease without the necessary weapons —tuberculosis-clinics and sanatoria, and has consequently limited its efforts to public educational work and to assisting in every way possible the valuable work of the tuberculosis associations. Unquestionably the State has a duty to perform in developing the facilities for preventing this frightful annual loss of life.

Syphilis among the parasitic causes of disease is the one great rival of tuberculosis as a cause of preventable death and inefficiency. In this disease, not only are there no morbidity reports made, but deaths caused by it are not truthfully reported except in rare instances. In syphilis, as in alcoholism, it may be stated that "no one with any friends or standing in the community dies of it," which means that somewhere in disguise scattered through the twenty thousand deaths recorded for circulatory, nervous, childbirth, early infancy diseases, and here and there among the forty-two thousand deaths due to other causes during the past two years, there are probably ten thousand deaths due directly or in large measure to syphilis.

The Board has made a beginning in the attack upon this disease. In December, 1909, an exhibit was prepared which attracted some attention. One bulletin has been devoted to syphilis and gonococcus infections. The space devoted to this subject in the sanitation car was the means of rousing interest in many parts of the State. The Association for the Study and Prevention of Syphilis and Gonorrhœa has done excellent work, and has been encouraged by the Board.

Gonococcus infections cost many lives and great inefficiency, particularly among California's young men and women. The fact that in a large majority of instances this disease has been contracted by young men "sowing their wild oats," has led to a false policy of silence which has been the chiefest ally of the gonococcus in making victims of innocent women and children. The women become infected by husbands who have never known that gonorrhoea is a "germ" disease that may lie dormant for many years without apparent ill health being manifested in the individual harboring the disease. Children's eyes become infected at birth, because physicians will not use the precaution of disinfecting the eyes of all new-born babies, lest they throw suspicion on some parents who would resent it. In 1909 the Board adopted resolutions advocating the general use of the Credé silver nitrate method in disinfecting the eyes of all new-born children. It is very desirable that the State Board of Health should take final action placing syphilis and gonococcus infections on the reportable list.*

Pneümonia, among other important diseases due to bacterial invasion, should be noted as steadily decreasing. There were 2,678 deaths in 1907, 2,421 deaths in 1908, and only 2,081 deaths in 1909 from this cause. On the other hand, deaths from diseases of the nervous system and of the circulatory system have steadily increased. This is also true of "kidney" diseases, and of cancer.

The following tabulation is significant:

Disease.	1906.	1907.	1908.	1909.	Change in 4 years; proportion per 1,000 deaths.
Pneumonia	2,431	2,678	2,421	2,081	15.8 decrease
Nervous system	2,297	2,403	2,422	2,479	1.6 increase
Circulatory system	3,766	4,362	4,540	4.966	31.8 increase
Kidney system	1,622	1,787	1,797	1,858	4.6 increase
Cancer	1,502	1,590	1,737	1,945	11.5 increase

While these diseases with the possible exception of pneumonia, are not communicable, they are in large measure preventable (with the possible exclusion of cancer). The strenuous life, unaccompanied by rational living, is exacting a needless sacrifice of lives even greater in the aggregate than the loss from the strictly communicable diseases. But this loss occurs at a much later period of life, the average (except for pneumonia) being 55 to 60 years when the expectation for life is not more than 16 to 20 years. Pneumonia, like tuberculosis, typhoid, etc., causes death at an average age of 30 to 35 years, when the expectation for life is 33 to 35 years; while victims of diphtheria and scarlet fever average 3 years at death, with an expectation of 50 to 55 more years of life; and measles and whooping-cough, average 1 year, with an expectation of 50 years and over.

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* This action was taken October 1, 1910.

ADMINISTRATIVE WORK OF THE BOARD.

The foregoing figures on the prevalence of certain diseases constitute an index to the work of the Secretary's office. The limited funds and facilities of the Board have been directed to those foci of disease which have been most important. Typhoid fever and diphtheria have been actively fought wherever they have appeared. The hygienic laboratory has been utilized to discover cases of these diseases and to determine when quarantine precautions are no longer necessary. The Secretary and Medical Inspector Russ have spent much time in field investigations of the source of epidemics from these diseases.

The laboratory has also been largely used in locating foci of tuberculosis and malaria, but the chief efforts of the Board have been directed toward popular education concerning these diseases. Many lectures and demonstrations have been given, and a large amount of literature has been sent out to interested citizens. These measures have resulted in a large correspondence.

The Board should make laboratory examinations for the gonococcus, and effect arrangements with the lunacy commission for making examinations for syphilis. This latter technique could not be thrown open to the general physicians at present, but should be made available for the State's medical examiners for insanity.

MORBIDITY AND MORTALITY REPORTS.

The office work has been increased over 30 per cent by the growth of the vital statistics records and correspondence since 1907. The efforts of the Secretary to carry into effect the determination of the Board to make the reporting of all communicable diseases complete and prompt has necessitated a great increase in the routine office work, but the response from the local communities and health officials has been most encouraging. Probably not more than 2 per cent of the morbidity was being reported in 1908. This has been increased to an estimated 20 per cent for 1910, with a percentage as high as eighty for the more important diseases.

RELATIONS WITH COUNTY HEALTH OFFICERS.

It has been the policy of the Board to aid in every way possible the upbuilding of the county health office. The incorporated cities can protect themselves to only a limited degree without the coöperation of the county. The milk supplies, vegetables, berries, fruit, meat, and even the water supply in the majority of instances comes from the territory under the jurisdiction of the county health officer. On the other hand, the city's garbage, sewage, and other great wastes are carried out into this same territory. Furthermore, there is a constant interchange of persons between the county and the city. A constantly increasing number of city people are becoming county residents, with business offices in the cities; the yearly exodus of city people to the mountains and the sea coast is rapidly increasing; and the restless army of the temporarily employed travels back and forth between the cheap lodging houses of the city and the homes of the country side. The winter months bring the winter shoppers and pleasure-seekers to the city.

California can not hope to effectively and economically battle against preventable diseases until a strong system of county health offices has been established. The State Board of Health should do everything in its power to bring this about. During the past two years the Board has received and has given invaluable aid in county and intercounty problems. The establishment of substations of the hygienic laboratory, and the provision of sanitary field inspectors, will enable the Board to adequately support county health officers, and encourage by demonstration the provision of local laboratories and inspectors for the more populous counties.

EPIDEMIOLOGICAL INVESTIGATIONS.

Under the Board's instructions the Secretary has carried out such epidemiological investigations as have been possible. These investigations would have been impossible without the efficient and generous unpaid services of a number of Californians.

Dr. Herbert Gunn, of San Francisco, has given much time to a most important study of hookworm in the mining districts of the State. His preliminary report is printed herewith. It constitutes a strong argument for a corps of full-time medical officers available for the extension of such work.

Dr. F. F. Gundrum, of Sacramento, has similarly rendered the State important service in an exacting and time consuming field investigation of acute poliomyelitis anterior. This disease has assumed epidemic proportions this year, and the investigation begun should be actively carried on.

Professor R. R. Long and Miss W. R. D. Randall, of Stanford University, have made a preliminary survey of the agency of rags and employment agencies in the transmission of disease between the cities and country districts.

Through the office staff some work has been done on the prevalence and epidemiology of syphilis and gonococcus infections.

The Board has done what it could to aid the officers of the Federal Government detailed to investigate bubonic plague in California. During the past two years some very important scientific work in the bacteriology and epidemiology of plague has been carried on by Passed Assistant Surgeons G. W. McCoy and W. C. Rucker. Surgeon Rupert Blue, as commanding officer, has directed this work with ability and by prompt adaptation of the new facts to the situation has held the disease under control and relieved California from anxiety over an interstate or international commercial quarantine.

COÖPERATION BETWEEN NEWSPAPERS AND WELFARE ORGANIZATIONS.

There is no single factor of greater significance and promise in the health conservation movement than the activity of the press of California in popularizing authentic information concerning diseases and their prevention. The welfare organizations and the State Board of Health have had the support and encouragement of the editors in all the important advances which have been made. In malaria this has meant more than half the battle. Without this aid the tuberculosis movement would have been seriously crippled. Even the frank attack upon syphilis and gonococcus infections has been supported by many editors, who have had the courage to print articles endorsing this new movement.

It is but justice to these papers to point out that this active policy of the editorial management is at the heavy sacrifice of the financial income derived from the advertisements of the dishonest medicines and "Free Consultation Experts." This is parallel to the physician's sacrifice in actively supporting measures which he knows will increasingly limit his income from the treatment of illness due to these preventable causes.

Such manifestations of faith in policies of health conservation, and determination to succeed regardless of personal sacrifice, promise great strides in the application of preventive medical science in the next five years.

DEPARTMENT REPORTS.

The attention of the Board is directed to the excellent reports which have been presented by the directors of the laboratories and of vital statistics. These reports are full of well organized and most valuable data for permanent filing.

In addition to the regular departments the Board has maintained three divisions of work, experimentally, in order to determine the desirability of permamently enlarging its work in these directions The Secretary has served as acting director of a bureau of epidemiology.

which has organized the correspondence and detailed field work of investigating and eradicating foci of disease. Dr. Raymond Russ, medical inspector of the Board, has acted as director of the bureau of public health information and editor of the bulletin. Mr. N. D. Baker, engineer inspector of the Board, has been assigned the correspondence and investigation of the engineering phases of epidemiological problems. The work of these divisions has amply proved the desirability of establishing them as permanent departments.

The report of Mr. Baker is included as presenting evidence for the need of a sanitary engineering department, equipped with facilities for a sanitary engineering laboratory.

FINANCIAL NEEDS OF THE BOARD.

California ranks twenty-second among the states in the per capita tax for state public health work. Data is available to prove conclusively to any person, sufficiently interested in California's welfare to study the problem of preventable death and disease, that the State is losing annually between seventy-five and one hundred million dollars through these agencies. The tabulation of state appropriations given below is evidence that it is neither unreasonable nor excessive for the State Board of Health to ask the next legislature for at least double its present appropriation. In proportion to Pennsylvania's expenditure, California should spend $500,000 per year in this work.

California's annual appropriation of approximately $37,000 for all purposes is less than 6 per cent of the per capita appropriations for the same purposes in Pennsylvania and the District of Columbia, which rank first and second, respectively, in this list.

STATE.	Per capita Health Appropriation Mills.	Annual Appropriation.	Population.	Total Assessed Valuation.	Per Capita Wealth.
1. Pennsylvania	286	$1,500,000 00	7,665,111	$5,769,777,327	$753 00
2 District of Columbia	205	68,980 00	331,069	312,473,714	950 00
3. Florida	100	75,000 00	752,619	130,671,226	173 00
4 Vermont	75	26,500 00	355,956	185,826,798	522 00
5. Colorado	58	45,000 00	779,024	----------	--------
6 Utah	53.5	20,000 00	373,351	146,204,650	392 00
7. Idaho	47.8	15,500 00	325,594	120,815,384	371 00
8. Massachusetts	42	140,500 00	3,366,416	4,574,136,145	1,357 00
9. Rhode Island	37	20,000 00	542,610	497,547,560	918 00
10. New Hampshire	31	13,600 00	430,572	249,219,335	579 00
11. Montana	29.6	11,000 00	376,053	280,401,064	745 00
12. New Jersey	28.4	72,000 00	2,537,167	----------	--------
13. Kansas	27.2	46,000 00	1,690,949	2,511,260,285	1,485 00
14. North Dakota	24	14,000 00	577,056	280,000,000	485 00
15. Delaware	22.5	4,500 00	202,322	----------	--------
16. Connecticut	22	24,500 00	1,114,756	----------	--------
17. Maine	20.6	15,250 00	742,371	364,898,714	492 00
18 Virginia	19.4	40,000 00	2,061,612	579,565,539	281 00
19. Washington	18.6	21,250 00	1,141,990	790,419,826	693 00
20. Indiana	17.9	50,000 00	2,700,876	1,776,132,096	658 00
21. New York	16.6	152,500 00	9,113,614	9,666,118,681	1,058 00
22. California	15.5	37,200 00	2,377,549	2,337,279,720	985 00

This shows that among the above enumerated states California stands fourth in per capita wealth and twenty-second in per capita health appropriation; fifth in total assessed valuation of property and twelfth in total health appropriation; and twelfth in total population. California's health appropriation is 1.6 mills per $100 of assessed valuation as compared with an average for all the states listed above, of 8.6 mills.

NEEDED LEGISLATION.

The paramount need of health legislation is greater appropriations. California has good laws, but laws will not enforce themselves. The State Board of Health should have $100,000 per year to do adequately the important work with which it is now charged by the legislature.

Experience has shown that minor changes are desirable in some of the existing laws. The quarantine laws should be revised; the duties of county health officers should be increased; the laws governing the pollution of streams should be modified and made more effective. There are many arguments in favor of establishing county boards of health, composed possibly of health officer, superintendent of schools, district attorney, surveyor, recorder.

THE EVER-PRESENT PROBLEM.

The first report of the California State Board of Health summarizing the health problems before the citizens of California in 1870—just forty years ago—has this introductory statement:

> "It was the unanimous opinion of the Board not to attempt too much at first, that would swell this report beyond a readable and convenient size for public use, but rather to study those questions only which are pressing most grievously on every class of society, and are endangering the people's safety and curtailing the blessings of life. Accordingly, it was decided to take up the following subjects:
>
> 1. The use of intoxicating liquors.
> 2. Ventilation.
> 3. Schoolroom diseases.
> 4. Female hygiene.
> 5. Municipal relations concerning the dead.
> 6. The supply of water to our cities and towns, for sewerage as well as domestic supply.
> 7. The sanitary architecture of our public buildings.
> 8. The Chinese from a sanitary standpoint.
> 9. The social evil problem."

In presenting a résumé of the unsolved problems of public health with which the present day generation should deal, no better list can be prepared than this of forty years ago, nor could more earnest and powerful arguments be written in support of needed action than those which are printed in the first biennial report of this Board. These problems have remained unsolved largely because the Board has had no funds either for investigation or administration.

A PERSONAL WORD.

In presenting the foregoing report for your consideration your present Secretary is not unmindful of the difficulties and apprehension to which the appointment of a new and untried secretary may give rise among the members and appointees of a board of health.

Your former Secretary, Dr. N. K. Foster, had been your associate in all the upbuilding of the splendid foundation you now possess for the health administration of the State. His resignation necessarily was a source of grave concern. Your present Secretary has tried to carry out your policies and to build on to the structure you have placed in his charge. He desires to take this opportunity to express his appreciation of your encouragement, forbearance, and wise policy of actively directing the policies of the Board without restricting the Secretary's freedom in controlling the administration of those policies and the executive staff. The Secretary further desires to take this opportunity to commend to you the loyalty and efficient work of all the officers and clerical force of the department.

PUBLIC HEALTH AND POLITICS.

In reappointing the present members of the State Board of Health Governor Gillett said: "The protection of the public health is too important a thing and concerns too intimately the personal welfare and happiness of every man, woman, and child in the State to permit politics playing any part in its administration. It is your duty to study the health conditions of California, and to initiate such administrative measures as your judgment indicates will improve these conditions. It shall be my policy to support your actions and do every thing in my power to make them effective."

THE CONSERVATION OF THE HOME.

Conservation of health has now reached the moment of becoming one of the great conservation policies of the day. The "Conservation of the Home" will be the great battle cry of the twentieth century.

Respectfully submitted.

WILLIAM F. SNOW,
Secretary.

VITAL STATISTICS.

FOR CALENDAR YEARS 1909 AND 1908.

[NOTE.—The vital statistics are presented for calendar, instead of fiscal years, to correspond with the annual mortality reports of the Federal Census Bureau.]

DEPARTMENT OF VITAL STATISTICS.

GEORGE D. LESLIE, STATISTICIAN.

STATISTICS OF BIRTHS: 1909 AND 1908.

SUMMARY.

Birth Totals and Increase.—The California birth total has risen from 20,974 in 1906 and 24,674 in 1907 to 28,077 in 1908 and 30,882 in 1909, falling short of the death total in 1909 by only 103.

The per cent of increase was 17.6 in 1906 to 1907, 13.8 in 1907 to 1908, and 10.0 in 1908 to 1909, the lowered rate being explained by the fact that when registration has become substantially complete the birth total increases only with natural growth of population.

The birth total for the counties north of Tehachapi was 21,364 in 1909 and 19,049 in 1908, while the corresponding totals for Southern California were, respectively, 9,518 and 9,028.

In 1908 to 1909 forty-three counties showed increases in births, and only fifteen showed decreases.

The increases surpassed the State average, 10.0 per cent, in the following thirty counties: Yolo, Merced, Tuolumne, Amador, Stanislaus, Ventura, Imperial, Placer, Trinity, Sutter, Butte, Mono, Modoc, Yuba, Shasta, Kern, Lassen, Sonoma, Mendocino, Fresno, Sacramento, Kings, Lake, San Joaquin, Santa Clara, Napa, Riverside, Tulare, Del Norte, and Mariposa.

The rate of gain for freeholders' charter cities was 11.4 in 1907 to 1908, and 7.5 in 1908 to 1909 as compared with, respectively, 18.0 and 14.2 for all the rest of the State.

The per cent of increase was above the city average of 7.5 in 1908 to 1909 for each of the following cities: Napa, San José, Watsonville, Grass Valley, Long Beach, Berkeley, Santa Barbara, Riverside, Oakland, San Diego, and San Francisco.

Birth and Death Totals Compared.—There was an excess of births over deaths in San Francisco, the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), and the adjoining coast counties (Monterey, San Benito, San Luis Obispo, Santa Clara, and Santa Cruz) in 1909 alone, as well as in Los Angeles in both 1909 and 1908.

More births than deaths were reported in 1909 for fifteen chartered cities as follows: Eureka, Napa, Santa Rosa, and Grass Valley in Northern California; San Francisco, Alameda, Berkeley, Oakland, Palo Alto, San José, Watsonville, Fresno, and Vallejo in Central California; and Los Angeles and Riverside in Southern California.

The twenty-six freeholders' charter cities in 1909 reported 18,906 births, or 61.2 per cent of the State total, but only 17,472 deaths, or 56.4 per cent of all. In 1908, similarly, the twenty-four chartered cities reported 17,586 births, or 62.6 per cent of all, but only 17,480 deaths, or 55.9 per cent of the State total.

Birth-Rates.—For an estimated midyear population of 2,306,001 in 1909, the 30,882 births give a rate of 13.4, and for an estimated midyear population of 2,215,615 in 1908, the 28,077 births give a rate of 12.7 per 1,000 inhabitants.

The birth-rates in 1909 and 1908, respectively, were 13.3 and 13.5 for Southern California, and 14.1 and 13.0 for Central California, but only 10.7 and 9.3 for Northern California.

The birth-rates were much higher each year for San Francisco and the other bay counties than for the rural counties of Northern and Central California.

The individual counties with birth-rates above the State averages each year were: Santa Clara, Lake, San Francisco, Fresno, Kings, Alameda, Riverside, Los Angeles, San Mateo, Nevada, and Madera.

The birth-rates equaled or exceeded the general averages for cities in 1908, than for the rest of the State, only 11.3 and 10.1, respectively.

The birth-rate equalled or exceeded the general averages for cities each year in Eureka, Alameda, Fresno, Santa Rosa, Berkeley, Riverside, San Bernardino, Vallejo, San Francisco, and Los Angeles, as well as in Oakland.

General Birth Statistics.—The 30,882 babies in 1909 included 16,150 boys and 14,732 girls, while of the 28,077 in 1908, 14,516 were male and 13,561 were female. The per cent male was 52.3 for 1909 against 51.7 for 1908, the preponderance of male births increasing somewhat.

For births in freeholders' charter cities the per cents male were 52.2 and 51.7 in 1909 and 1908, respectively, against 52.5 and 51.7 for the rest of California.

The race distribution of births in 1909 was: White, 29,736; Japanese, 682; negro, 222; Chinese, 208; and Indian, 34. For 1908 the figures were: White, 27,190; Japanese, 455; Chinese, 227; negro, 186; and Indian, 19. The per cent white was 96.3 for 1909 as compared with 96.8 for 1908.

For chartered cities the per cent white was 96.1 in 1909 and 96.4 in 1908, while for the rest of the State the per cents white were 96.6 and 97.6, respectively.

The preponderance of males is greater, both within cities and outside them, among the few non-Caucasian babies than among the many white infants.

The nativity of the white mothers in 1909 was: Born in other states, 10,700, or 36.0 per cent; born in California, 10,544, or 35.5 per cent; and foreign born, 8,492, or 28.5 per cent. The figures for 1908 were: Other states, 10,099, or 37.2 per cent; California, 9,469; or 34.8 per cent; and foreign, 7,622, or 28.0 per cent.

For cities the per cent of mothers born in other states was 34.1 in 1909 and 36.2 in 1908; the per cents born in California were 33.4 and 32.4; and the per cents foreign born were 32.5 and 31.4. For the rural districts the per cents in 1909 and 1908 were, respectively: Other states, 38.9 and 38.7; California, 38.7 and 38.8; and foreign, 22.4 and 22.5.

In both 1909 and 1908 the per cent male for the whole State was lower among children of California mothers than among those of other American or foreign born mothers, though differences between geographic divisions and between urban and rural districts prevent the drawing of general conclusions about the effect of maternal nativity on the preponderance of male births.

Nativity of Brides and Mothers.—Comparison of the per cent distribution of white brides and mothers, by nativity, shows that throughout California a larger portion of the brides than of the mothers were born in this State. Similarly, but in less degree, a larger proportion of the brides than the mothers were natives of other states. On the other hand, a much larger proportion of the mothers than of the brides in California were foreign born.

There is likewise an excess in the per cent born in California among single brides over that among mothers, though there is relatively little difference in the per cents born elsewhere in the United States for single brides and mothers. However, there is a great excess in the per cent born abroad among mothers over that for single brides.

It seems, therefore, that in California, as elsewhere in the United States, the fecundity of foreign born women is greater than that of native women, whether born in California or other states.

BIRTH TOTALS AND INCREASE.

The State.—Under the law of 1905 requiring physicians and midwives to file birth certificates with County Recorders and City Health Officers for transmittal to the State Bureau of Vital Statistics, there has been a marked improvement in the completeness of birth registration in California. Returns are now available for the four calendar years 1906 to 1909, inclusive, and they show a steady rise in the birth total, as appears from the following table giving the birth total compared with death and marriage totals:

TABLE 1.—*Birth Total Compared with Death and Marriage Totals, for California: 1906 to 1909.*

	1909.	1908.	1907.	1906.
Births	30,882	28,077	24,674	20,974
Deaths	30,985	31,287	31,095	29,303
Marriages	22,917	21,739	23,005	21,317

While the death and marriage totals for California have fluctuated comparatively little in the four years, each having both risen and fallen somewhat, the birth total has grown steadily greater in successive years, rising from 20,974 in 1906 to 24,674 in 1907, 28,077 in 1908, and 30,882 in 1909. For 1909, in fact, the birth total falls short of the death total by only 103, stillbirths being excluded in both cases.

The increase of births for California is shown in the table which follows:

TABLE 2.—*Increase of Births, for California: 1906 to 1909.*

YEAR.	California Births.	Increase.	Per Cent
1909	30,882	2,805	10.0
1908	28,077	3,403	13.8
1907	24,674	3,700	17.6
1906	20,974	--------	--------

The increase of 3,700 or 17.6 per cent in 1906 to 1907 was followed by one of 3,403 or 13.8 per cent in 1907 to 1908 and by one of 2,805 or 10.0 per cent in 1908 to 1909. The number and per cent of increase necessarily grow less and less as registration becomes more and more complete, since the early gains were swollen by improved registration while recent gains include little except the natural growth of population.

Geographic Divisions.—The following table shows the increase of births for geographic divisions in the three years 1907 to 1909, inclusive:

TABLE 3.—*Increase of Births, for Geographic Divisions: 1907 to 1909.*

GEOGRAPHIC DIVISION.	Births.			Increase.		Per Cent of Increase.	
	1909.	1908.	1907.	1908 to 1909.	1907 to 1908	1908 to 1909.	1907 to 1908.
THE STATE	30,882	28,077	24,674	2,805	3,403	10.0	13.8
Northern California	3,155	2,698	2,405	457	293	16.9	12.2
Coast counties	1,336	1,151	953	185	198	16.1	20.8
Interior counties	1,819	1,547	1,452	272	95	17.6	6.5
Central California	18,209	16,351	14,347	1,858	2,004	11.4	14.0
San Francisco	6,680	6,058	5,128	572	930	9.4	18.1
Other bay counties	4,534	4,262	3,944	272	318	6.4	8.1
Coast counties	2,216	2,063	1,924	153	139	7.4	7.2
Interior counties	4,829	3,968	3,351	861	617	21.7	18.4
Southern California	9,518	9,028	7,922	490	1,106	5.4	14.0
Los Angeles	6,710	6,404	5,823	306	581	4.8	10.0
Other counties	2,808	2,624	2,099	184	525	7.0	25.0
Northern and Central California	21,364	19,049	16,752	2,315	2,297	12.2	13.7
Coast counties	14,716	13,534	11,949	1,182	1,585	8.7	13.3
Interior counties	6,648	5,515	4,803	1,133	712	20.5	14.8
Metropolitan area	11,164	10,320	9,072	844	1,248	8.2	13.8
Rural counties	10,200	8,729	7,680	1,471	1,049	16.9	13.7

The high rates of gain since 1907 shown for certain groups of counties, such as the coast counties of Northern California and the interior counties of Central California, indicate that there has been much improvement in the registration of births in districts where registration has heretofore been rather incomplete. On the other hand, the relatively low rates of gain, especially for 1908 to 1909, shown for other geographic divisions, indicate that in these cases birth registration had become substantially complete by 1908 so that the increase for 1909 reflects mainly the gain in the number of births actually occurring. This explains the relatively low per cents of increase in 1908 to 1909 shown for San Francisco, 9.4; other bay counties, 6.4; coast counties of Central California, 7.4; Los Angeles, 4.8; and other counties of Southern California, 7.0.

The birth total for the counties north of Tehachapi was 21,364 in 1909, against 19,049 in 1908, a gain of 2,315, or 12.2 per cent. The totals for Southern California were 9,518 in 1909 and 9,028 in 1908, an increase of 490, or 5.4 per cent.

The per cent of increase was 11.4 for Central California and 16.9 for Northern California, or 12.2 for both together. The per cent was 8.2 for the metropolitan area comprising San Francisco and the other bay counties, as compared with 16.9 for the rural counties north of Tehachapi.

Counties.—The table on the following page gives the increase (or decrease) of births for each county, as well as the per cent of increase for those showing gains in 1909 over 1908.

The high rates of gain, of over 100 per cent, shown for Yolo, Merced, Tuolumne, and Amador counties, are evidently due to the incompleteness of the returns for 1908, and the same explanation applies in part to the rates of 75.7 for Stanislaus, 73.7 for Ventura, 61.7 for Imperial, and 52.2 for Placer.

The per cents of increase were next highest for the following counties: Trinity, 45.0; Sutter, 44.4; Butte, 40.2; Mono, 37.5; Modoc, 36.7; Yuba 31.1; Shasta, 29.2; Kern, 27.9; Lassen, 22.9; Sonoma, 22.2; Mendocino, 21.8; Fresno, 18.1; Sacramento, 17.3; Kings, Lake, and San Joaquin, each 16.3: Santa Clara, 15.4; Napa, 14.6; Riverside, 13.8; Tulare, 13.4; Del Norte, 10.7; and Mariposa, 10.0. Each of these twenty-two counties shows a rate of gain equaling or exceeding the average rate for the State, 10.0 per cent.

TABLE 4.—*Increase of Births, for Counties: 1908 to 1909.*

COUNTY.	Births.		Increase.	Decrease.	Per Cent of Increase.
	1909.	1908.			
CALIFORNIA	30,882	28,077	2,805	--------	10.0
Alameda	3,641	3,323	318	--------	9.6
Alpine	4	7	--------	3	--------
Amador	96	45	51	--------	113.3
Butte	366	261	105	--------	40.2
Calaveras	126	115	11	--------	9.6
Colusa	73	79	--------	6	--------
Contra Costa	288	292	--------	4	--------
Del Norte	31	28	3	--------	10.7
El Dorado	86	98	--------	12	--------
Fresno	1,168	989	179	--------	18.1
Glenn	42	41	1	--------	2.4
Humboldt	430	397	33	--------	8.3
Imperial	97	60	37	--------	61.7
Inyo	21	28	--------	7	--------
Kern	243	190	53	--------	27.9
Kings	243	209	34	--------	16.3
Lake	93	80	13	--------	16.3
Lassen	43	35	8	--------	22.9
Los Angeles	6,710	6,404	306	--------	4.8
Madera	111	106	5	--------	4.7
Marin	249	302	--------	53	--------
Mariposa	22	20	2	--------	10.0
Mendocino	173	142	31	--------	21.8
Merced	103	44	59	--------	134.1
Modoc	67	49	18	--------	36.7
Mono	11	8	3	--------	37.5
Monterey	264	266	--------	2	--------
Napa	173	151	22	--------	14.6
Nevada	211	206	5	--------	2.4
Orange	365	395	--------	30	--------
Placer	175	115	60	--------	52.2
Plumas	43	46	--------	3	--------
Riverside	504	443	61	--------	13.8
Sacramento	836	713	123	--------	17.3
San Benito	64	61	3	--------	4.9
San Bernardino	665	638	27	--------	4.2
San Diego	624	628	--------	4	--------
San Francisco	6,630	6,058	572	--------	9.4
San Joaquin	577	496	81	--------	16.3
San Luis Obispo	195	203	--------	8	--------
San Mateo	356	345	11	--------	3.2
Santa Barbara	315	323	--------	8	--------
Santa Clara	1,387	1,202	185	--------	15.4
Santa Cruz	306	331	--------	25	--------
Shasta	261	202	59	--------	29.2
Sierra	29	37	--------	8	--------
Siskiyou	238	261	--------	23	--------
Solano	339	332	7	--------	2.1
Sonoma	407	333	74	--------	22.2
Stanislaus	253	144	109	--------	75.7
Sutter	91	63	28	--------	44.4
Tehama	83	78	5	--------	6.4
Trinity	29	20	9	--------	45.0
Tulare	405	357	48	--------	13.4
Tuolumne	73	32	41	--------	128.1
Ventura	238	137	101	--------	73.7
Yolo	112	35	77	--------	220.0
Yuba	97	74	23	--------	31.1

There were also increases in births, but at the rates below the State average, in the following thirteen counties, arranged in descending order: Alameda and Calaveras, each 9.6; San Francisco, 9.4; Humboldt, 8.3; Tehama, 6.4; San Benito, 4.9; Los Angeles, 4.8; Madera, 4.7; San

Bernardino, 4.2; San Mateo, 3.2; Glenn and Nevada, each 2.4; and Solano, 2.1.

According to the registration, there were decreases in births for 1909, as compared with 1908, in the following fifteen counties arranged alphabetically: Alpine, Colusa, Contra Costa, El Dorado, Inyo, Marin, Monterey, Orange, Plumas, San Diego, San Luis Obispo, Santa Barbara, Santa Cruz, Sierra, and Siskiyou.

Cities.—The County Recorder is ex officio local registrar of births, except that in cities having freeholders' charters the Health Officer so acts. Birth totals are therefore available only for chartered cities, of which there were twenty-six in 1909 and twenty-four in 1908 and 1907. The two additional cities were Palo Alto, reporting only 62 births, and Richmond, reporting only 36. The following table shows the increase of births for individual cities and the rest of the State in the three years 1907 to 1909, inclusive, the cities being arranged according to geographic location:

TABLE 5.—*Increase of Births, for Individual Cities and Rest of State: 1907 to 1909.*

CITY.	Births.			Increase.		Per Cent of Increase.	
	1909.	1908.	1907.	1908 to 1909.	1907 to 1908.	1908 to 1909.	1907 to 1908.
CALIFORNIA	30,882	28,077	24,674	2,805	3,403	10.0	13.8
Freeholders' charter cities	18,906	17,586	15,786	1,320	1,800	7.5	11.4
Northern California.							
Eureka	245	245	90	------	155	------	172.2
Napa	103	76	78	27	2*	35.5	2.6*
Santa Rosa	136	131	162	5	31*	3.8	19.1*
Grass Valley	70	58	77	12	19*	20.7	24.7*
Central California.							
San Francisco	6,630	6,058	5,128	572	930	9.4	18.1
Alameda	411	413	378	2*	35	0.5*	9.3
Berkeley	669	567	510	102	57	18.0	11.2
Oakland	2,024	1,826	1,824	198	2	10.8	0.1
Richmond	36	------	------	36	------	------	------
Salinas	53	75	60	22*	15	29.3*	25.0
Palo Alto	62	------	------	62	------	------	------
San Jose	459	367	382	92	15*	25.1	3.9*
Santa Cruz	135	168	182	33*	14*	19.6*	7.7*
Watsonville	111	91	86	20	5	22.0	5.8
Fresno	421	419	384	2	35	0.5	9.1
Sacramento	529	523	442	6	81	1.1	18.3
Stockton	281	262	231	19	31	7.3	13.4
Vallejo	186	183	149	3	34	1.6	22.8
Southern California.							
Los Angeles	4,548	4,399	4,201	149	198	3.4	4.7
Long Beach	223	188	158	35	30	18.6	19.0
Pasadena	409	436	440	27*	4*	6.2*	0.9*
Santa Monica	83	93	70	10*	23	10.8*	32.9
Riverside	250	225	105	25	120	11.1	114.3
San Bernardino	207	219	188	12*	31	5.5*	16.5
San Diego	467	423	332	44	91	10.4	27.4
Santa Barbara	158	141	129	17	12	12.1	9.3
Rest of State	11,976	10,491	8,888	1,485	1,603	14.2	18.0

*Decrease.

For chartered cities as a class the birth total was 18,906 in 1909, against 17,586 in 1908 and 15,786 in 1907, the increase for 1908 to 1909 being 1,320 or 7.5 per cent, as compared with 1,800 or 11.4 per cent for 1907 to 1908.

For all the rest of the State the total was 11,976 in 1909, 10,491 in 1908 and 8,888 in 1907, the gain being 1,485 or 14.2 per cent for 1908 to 1909 and for 1907 to 1908 being 1,603 or 18.0 per cent.

The lower rates of gain shown for cities as a class than for the rest of the State indicate that in cities birth registration has heretofore been more complete than in rural districts. The gains in rural districts are still due largely to growing improvement in registration rather than to increasing numbers of births alone.

The per cents of increase were above the city average of 7.5 in 1908 to 1909 for the following cities: Napa, 35.5; San Jose, 25.1; Watsonville, 22.0; Grass Valley, 20.7; Long Beach, 18.6; Berkeley, 18.0; Santa Barbara, 12.1; Riverside, 11.1; Oakland, 10.8; San Diego, 10.4; and San Francisco, 9.4. Cities with rates of gain below the general average were as follows: Stockton, 7.3; Santa Rosa, 3.8; Los Angeles, 3.4; Vallejo, 1.6; Sacramento, 1.1; and Fresno, 0.5. Eureka reported the same number of births in 1909 as in 1908, while the following cities reported fewer births for 1909 than for 1908, viz.: Alameda, Salinas, Santa Cruz, Pasadena, Santa Monica, and San Bernardino.

It may be noted that the 18,906 births in the twenty-six freeholders' charter cities in 1909 form 61.2 per cent of the 30,882 births registered in the whole State, and that the 17,586 births in the twenty-four chartered cities in 1908 form 62.6 per cent of the 28,077 in the entire State.

BIRTH AND DEATH TOTALS COMPARED.

Geographic Divisions.—Comparison of the birth and death totals for geographic divisions in 1909 and 1908, given in Table 6, shows that in 1908 Los Angeles County was the only minor geographic division reporting an excess of births over deaths. In 1909, however, there was an excess of births over deaths not only in Los Angeles County, but also in San Francisco, the group of other bay counties (Alameda, Contra Costa, Marin, and San Mateo), and in the coast counties of Central California (Monterey, San Benito, San Luis Obispo, Santa Clara, and Santa Cruz). Each year the excess of births over deaths in Los Angeles was greater than the excess of deaths over births in the other counties south of Tehachapi, so that Southern California as a whole showed a slight excess of births over deaths. In 1909 the excess of births over deaths in the metropolitan area (San Francisco and the other bay counties) fell somewhat short of the excess of deaths over births in the rural counties, so that for the counties north of Tehachapi there was still an excess of deaths over births. The detailed figures are as follows:

TABLE 6.—*Birth and Death Totals Compared, for Geographic Divisions: 1909 and 1908.*

GEOGRAPHIC DIVISION.	1909.		1908.		1909, Excess of—		1908, Excess of—	
	Births.	Deaths.	Births.	Deaths.	Births.	Deaths.	Births.	Deaths.
THE STATE	30,882	30,985	28,077	31,287	-------	103	-------	3,210
Northern California	3,155	3,946	2,698	4,148	-------	791	-------	1,450
Coast counties	1,336	1,913	1,151	1,943	-------	577	-------	792
Interior counties	1,819	2,033	1,547	2,205	-------	214	-------	658
Central California	18,209	17,599	16,351	18,145	610	-------	-------	1,794
San Francisco	6,630	6,150	6,058	6,260	480	-------	-------	202
Other bay counties	4,534	4,108	4,262	4,265	426	-------	-------	3
Coast counties	2,216	2,167	2,063	2,131	49	-------	-------	68
Interior counties	4,829	5,174	3,968	5,489	-------	345	-------	1,521
Southern California	9,518	9,440	9,028	8,994	78	-------	34	-------
Los Angeles	6,710	6,392	6,404	6,011	318	-------	393	-------
Other counties	2,808	3,048	2,624	2,983	-------	240	-------	359
Northern and Central California	21,364	21,545	19,049	22,293	-------	181	-------	3,244
Coast counties	14,716	14,338	13,534	14,599	378	-------	-------	1,065
Interior counties	6,648	7,207	5,515	7,694	-------	559	-------	2,179
Metropolitan area	11,164	10,258	10,320	10,525	906	-------	-------	205
Rural counties	10,200	11,287	8,729	11,768	-------	1,087	-------	3,039

Cities.—Table 7 presents similar figures for the chartered cities (numbering twenty-six in 1909 and twenty-four in 1908) and for the rest of California.

TABLE 7.—*Birth and Death Totals Compared, for Individual Cities and Rest of State: 1909 and 1908.*

CITY.	1909.		1908.		1909, Excess of—		1908, Excess of—	
	Births.	Deaths.	Births.	Deaths.	Births.	Deaths.	Births.	Deaths.
CALIFORNIA	30,882	30,985	28,077	31,287	-------	103	-------	3,210
Freeholders' charter cities	18,906	17,472	17,586	17,480	1,434	-------	106	-------
Northern California.								
Eureka	245	180	245	198	65	-------	47	-------
Napa	103	70	76	77	33	-------	-------	1
Santa Rosa	136	105	131	107	31	-------	24	-------
Grass Valley	70	58	58	88	12	-------	-------	30
Central California.								
San Francisco	6,630	6,150	6,058	6,260	480	-------	-------	202
Alameda	411	309	413	345	102	-------	68	-------
Berkeley	669	405	567	448	264	-------	119	-------
Oakland	2,024	1,642	1,826	1,646	382	-------	180	-------
Richmond	36*	92	-------	-------	-------	56*	-------	-------
Salinas	53	68	75	63	-------	15	12	-------
Palo Alto	62*	48	-------	-------	14*	-------	-------	-------
San Jose	459	386	367	389	73	-------	-------	22
Santa Cruz	135	190	168	167	-------	55	1	-------
Watsonville	111	103	91	103	8	-------	-------	12
Fresno	421	288	419	365	133	-------	54	-------
Sacramento	529	698	523	755	-------	169	-------	232
Stockton	281	455	262	481	-------	174	-------	219
Vallejo	186	172	183	192	14	-------	-------	9
Southern California.								
Los Angeles	4,548	4,013	4,399	3,752	535	-------	647	-------
Long Beach	223	235	188	219	-------	12	-------	31
Pasadena	409	410	436	373	-------	1	63	-------
Santa Monica	83	103	93	110	-------	20	-------	17
Riverside	250	238	225	204	12	-------	21	-------
San Bernardino	207	250	219	262	-------	43	-------	43
San Diego	467	601	423	701	-------	134	-------	278
Santa Barbara	158	203	141	175	-------	45	-------	34
Rest of State	11,976	13,513	10,491	13,807	-------	1,537	-------	3,316

*Birth returns incomplete.

Table 7 shows that for cities as a class, the excess of births over deaths rose from only 106 in 1908 to no less than 1,434 in 1909. For the rest of the State, the excess of deaths over births fell from 3,316 in 1908 to 1,537 in 1909. The table shows, further, that in 1908 only eleven of twenty-four cities reported more births than deaths, while in 1909 as many as fifteen of twenty-six cities had birth totals exceeding the death totals.

The fifteen cities reporting more births than deaths in 1909 were as follows: Eureka, Napa, Santa Rosa, and Grass Valley in Northern California; San Francisco, Alameda, Berkeley, Oakland, Palo Alto, San Jose, Watsonville, Fresno, and Vallejo in Central California; and Los Angeles and Riverside in Southern California.

Eleven cities reported fewer births than deaths in 1909, these cities being as follows: Richmond, Salinas, Santa Cruz, Sacramento, and

Stockton, north of Tehachapi; and Long Beach, Pasadena, Santa Monica, San Bernardino, San Diego, and Santa Barbara, south of Tehachapi.

It may be added that while 61.2 per cent of all births in California in 1909 occurred in the twenty-six freeholders' charter cities, only 56.4 per cent of all deaths in the State occurred in these cities. In 1908, similarly, while 62.6 per cent of all births were in the twenty-four chartered cities only 55.9 per cent of all deaths were in these same cities.

BIRTH-RATES.

Population Estimates.—With the publication of the Federal Census results for 1910, population estimates for preceding years can be revised with strict accuracy on the basis of county and city totals for June 1, 1900, and April 15, 1910, the estimates being made for the sake of uniformity as of July 1, or the middle of each year. The estimated midyear population for both 1908 and 1908 has been calculated on the assumption that the numerical increase (or decrease) was the same each month between June 1, 1900, and April 15, 1910. The average monthly increase is obtained by dividing the increase for the whole decade by 118.5 (the number of months between June 1, 1900, and April 15, 1910), and the total increase to July 1, 1908, is then got by multiplying by 97 (the number of months between June 1, 1900, and July 1, 1908), the increase to July 1, 1909, being obtained similarly by multiplying by 109 (the number of months between June 1, 1900, and July 1, 1909). The estimated midyear population for 1908 and 1909 is found, finally, by adding to the population enumerated June 1, 1900, the estimated increase to July 1, 1908 or 1909, as the case may be.[*]

Geographic Divisions.—For convenience in tabulation the fifty-eight counties of California have been grouped in three main and eight minor geographic divisions, shown in the table which follows, the counties in each group being arranged alphabetically for the sake of ready reference. Birth-rates are also shown for the metropolitan area, comprising San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in contrast with the rural counties of Northern and Central California.

The following table gives the estimated midyear population, births, and birth-rate per 1,000 population for the several counties arranged by geographic divisions in both 1909 and 1908:

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[*] The estimated midyear population for Alameda County, for instance, was obtained as follows:

Population enumerated April 15, 1910	246,131
Population enumerated June 1, 1900	130,197
Increase, June 1, 1900, to April 15, 1910 (118.5 months)	115,934
Increase, June 1, 1900, to July 1, 1909 (× 109 ÷ 118 5)	106,640
Increase, June 1, 1900, to July 1, 1908 (× 97 ÷ 118.5)	94,900
Estimated midyear population, 1909	236,837
Estimated midyear population, 1908	225,097

Similarly, the estimated midyear population for Alameda city was obtained thus:

Population enumerated April 15, 1910	23,383
Population enumerated June 1, 1900	16,464
Increase, June 1, 1900, to April 15, 1910 (118.5 months)	6,919
Increase, June 1, 1900, to July 1, 1909 (× 109 ÷ 118 5)	6,364
Increase, June 1, 1900, to July 1, 1908 (× 97 ÷ 118.5)	5,663
Estimated midyear population, 1909	22,828
Estimated midyear population, 1908	22,127

TABLE 8.—*Estimated Midyear Population, Births, and Birth-rate per 1,000 Population, for Counties arranged Geographically: 1909 and 1908.*

COUNTY.	Estimated Midyear Population.		Births.		Birth-rate per 1,000 Population.	
	1909.	1908.	1909.	1908.	1909.	1908.
THE STATE	2,306,001	2,215,615	30,882	28,077	13.4	12.7
Northern California	295,108	290,858	3,155	2,698	10.7	9.3
Coast counties	135,468	133,247	1,336	1,151	9.9	8.6
Del Norte	2,416	2,415	31	28	12.8	11.6
Humboldt	33,316	32,632	430	397	12.9	12.2
Lake	5,565	5,615	93	80	16.7	14.2
Mendocino	23,652	23,301	173	142	7.3	6.1
Napa	19,582	19,192	173	151	8.9	7.8
Sonoma	47,599	46,595	407	333	8.6	7.1
Trinity	3,388	3,497	29	20	8.6	5.7
Interior counties	159,640	157,611	1,819	1,547	11.4	9.8
Butte	26,485	25,458	366	261	13.8	10.3
Colusa	7,702	7,665	73	79	9.5	10.3
Glenn	7,010	6,805	42	41	6.0	6.0
Lassen	4,779	4,749	43	35	9.0	7.4
Modoc	6,102	5,989	67	49	11.0	8.2
Nevada	15,182	15,469	211	206	13.9	13.3
Placer	18,041	17,792	175	115	9.7	6.5
Plumas	5,211	5,150	43	46	8.3	8.9
Shasta	18,792	18,629	261	202	13.9	10.8
Sierra	4,092	4,083	29	37	7.1	9.1
Siskiyou	18,654	18,467	238	261	12.8	14.1
Sutter	6,293	6,248	91	63	14.5	10.1
Tehama	11,369	11,328	83	78	7.3	6.9
Yuba	9,928	9,784	97	74	9.8	7.6
Central California	1,295,427	1,254,567	18,209	16,351	14.1	13.0
San Francisco	410,969	403,462	6,630	6,058	16.1	15.0
Other bay counties	317,200	301,660	4,534	4,262	14.3	14.1
Alameda	236,837	225,097	3,641	3,323	15.4	14.8
Contra Costa	30,581	29,201	288	292	9.4	10.0
Marin	24,359	23,406	249	302	10.2	12.9
San Mateo	25,423	23,956	356	345	14.0	14.4
Coast counties	158,298	154,559	2,216	2,063	14.0	13.3
Monterey	23,764	23,281	264	266	11.1	11.4
San Benito	7,928	7,786	64	61	8.1	7.8
San Luis Obispo	19,168	18,885	195	203	10.2	10.7
Santa Clara	81,669	79,307	1,387	1,202	17.0	15.2
Santa Cruz	25,769	25,300	306	331	11.9	13.1
Interior counties	406,965	394,886	4,829	3,968	11.8	10.0
Alpine	325	345	4	7	12.3	20.3
Amador	9,249	9,454	96	45	10.4	4.8
Calaveras	9,834	9,589	126	115	13.5	12.1
El Dorado	7,612	7,763	86	98	11.3	12.6
Fresno	72,627	68,800	1,168	989	16.1	14.4
Inyo	6,766	6,503	21	28	3.1	4.3
Kern	36,018	33,862	243	190	6.7	5.6
Kings	15,720	15,076	243	209	15.5	13.9
Madera	8,207	8,004	111	106	13.5	13.2
Mariposa	4,017	4,095	22	20	5.5	4.9
Merced	14,672	14,072	103	44	7.0	3.1
Mono	2,052	2,065	11	8	5.4	3.9
Sacramento	66,051	63,834	836	713	12.7	11.2
San Joaquin	49,506	47,959	577	496	11.7	10.3
Solano	27,285	26,939	339	332	12.4	12.3
Stanislaus	21,482	20,168	253	144	11.8	7.1
Tulare	34,072	32,344	405	357	11.9	11.0
Tuolumne	10,074	10,194	73	32	7.2	3.1
Yolo	13,901	13,870	112	35	8.1	2.5
Southern California	715,466	670,190	9,518	9,028	13.3	13.5
Los Angeels	477,368	443,562	6,710	6,404	14.1	14.4
Other counties	238,098	226,628	2,808	2,624	11.8	11.6
Imperial	13,089	12,302	97	60	7.4	4.9
Orange	33,254	31,762	365	395	11.0	12.4
Riverside	33,349	31,648	504	443	15.1	14.0
San Bernardino	54,399	51,485	665	638	12.2	12.4
San Diego	58,997	55,666	624	628	10.6	11.3
Santa Barbara	27,082	26,141	315	323	11.7	12.4
Ventura	18,028	17,624	238	137	13.2	7.8
Northern and Central California	1,590,535	1,545,425	21,364	19,049	13.4	12.3
Coast counties	1,021,930	992,928	14,716	13,534	14.4	13.6
Interior counties	568,605	552,497	6,648	5,515	11.7	10.0
Metropolitan area	728,169	705,122	11,164	10,320	15.3	14.6
Rural counties	862,366	840,303	10,200	8,729	11.8	10.4

For an estimated midyear population of 2,306,001 in 1909, the 30,882 births registered in California give a birth-rate of 13.4 per 1,000 inhabitants, while for an estimated midyear population of 2,215,615 in 1908, the 28,077 in the State represent a rate of 12.7 per 1,000 population.

It may be noted that for an estimated midyear population of 2,125,240 in 1907, the 24,674 births give a rate of 11.6, while for an estimated midyear population of 2,034,861 in 1906, the 20,974 births give a rate of 10.3.

The birth-rates in 1909 and 1908, respectively, were 13.3 and 13.5 for Southern California as compared with 13.4 and 12.3 for Northern and Central California together, being 14.1 and 13.0 for Central California alone, but only 10.7 and 9.3 for Northern California alone. In both 1909 and 1908 the birth-rate was higher for the coast counties than for the interior counties north of Tehachapi. The rates were much higher each year for the metropolitan area, comprising San Francisco and the other bay counties, 15.3 in 1909 and 14.6 in 1908, than for the rural counties of Northern and Central California, 11.8 in 1909 and 10.4 in 1908. The birth-rates were also higher for Los Angeles, 14.1 and 14.4, than for the rest of Southern California, 11.8 and 11.6.

In 1909 and 1908, respectively, the birth-rates were 16.1 and 15.0 for San Francisco, 14.3 and 14.1 for the other bay counties, 14.0 and 13.3 for the adjoining coast counties of Central California, and 14.1 and 14.4 for Los Angeles in Southern California, these being the minor geographic divisions with rates above the State averages of 13.4 and 12.7.

Cities—Table 9 presents similar figures for freeholders' charter cities and for the rest of California. Birth-rates are shown for only twenty-three cities in 1909 and twenty-one in 1908 (instead of for twenty-six and twenty-four, respectively, as in other tables), because the population in 1910 had not been announced by the Federal Census Bureau for Grass Valley, Salinas, and Watsonville at the time this Biennial Report went to press, so that it was impossible to estimate the population of those three small cities by the same safe method used in the case of the other cities given in the table.

TABLE 9.—*Estimated Midyear Population, Births, and Birth-rate per 1,000 Population, for Individual Cities and Rest of State: 1909 and 1908.*

CITY.	Estimated Midyear Population.		Births.		Birth-rate per 1,000 Population.	
	1909.	1908.	1909.	1908.	1909.	1908.
Northern California.						
CALIFORNIA	2,306,001	2,215,615	30,882	28,077	13.4	12.7
Freeholders' charter cities*	1,221,914	1,155,601	18,672	17,362	15.3	15.0
Eureka	11,483	11,025	245	245	21.3	22.2
Napa	5,650	5,473	103	76	18.2	13.9
Santa Rosa	7,725	7,609	136	131	17.6	17.2
Grass Valley†	----------	----------	70	58	------	------
Central California.						
San Francisco	410,969	403,462	6,630	6,058	16.1	15.0
Alameda	22,828	22,127	411	413	18.0	18.7
Berkeley	38,252	35,495	669	567	17.5	16.0
Oakland	143,503	135,076	2,024	1,826	14.1	13.5
Richmond	6,575	----------	36	--------	5.5	------
Salinas†	----------	----------	53	75	------	------
Palo Alto	4,258	----------	62	--------	14.6	------
San Jose	28,349	27,595	459	367	16.2	13.3
Santa Cruz	10,706	10,150	135	168	12.6	16.6
Watsonville†	----------	----------	111	91	------	------
Fresno	23,896	22,638	421	419	17.6	18.5
Sacramento	43,460	41,899	529	523	12.2	12.5
Stockton	22,792	22,210	281	262	12.3	11.8
Vallejo	11,069	10,728	186	183	16.8	17.1
Southern California.						
Los Angeles	301,824	279,878	4,548	4,399	15.1	15.7
Long Beach	16,562	14,986	223	188	13.5	12.5
Pasadena	28,594	26,449	409	436	14.3	16.5
Santa Monica	7,463	6,978	83	93	11.1	13.3
Riverside	14,632	13,899	250	225	17.1	16.2
San Bernardino	12,248	11,576	207	219	16.9	18.9
San Diego	37,824	35,609	467	423	12.3	11.9
Santa Barbara	11,252	10,739	158	141	14.0	13.1
Rest of State‡	1,084,087	1,060,014	12,210	10,715	11.3	10.1

*Figures are for 23 freeholders' charter cities in both 1909 and 1908.

†Included with "Rest of State," proper estimates not being available because of nonpublication of 1910 Census population.

‡Includes figures for 3 chartered cities in both 1909 and 1908.

ADDITIONAL NOTE.—Population estimates furnished by the Federal Census Bureau agree with the estimates in the above table, varying by only 1 or 2 in a few cases, except for five cities (Berkeley, Oakland, Fresno, Los Angeles, and Pasadena), for which the estimates of the Census Bureau include corrections for territory annexed between 1900 and 1910. The following table gives revised figures for these five cities, together with changes made by the corrections in the totals for "Freeholders' charter cities" and for "Rest of State."

CITY.	Estimated Midyear Population.		Births.		Birth-rate per 1,000 Population.	
	1909.	1908.	1909.	1908.	1909.	1908.
Freeholders' charter cities	1,182,389	1,121,315	18,672	17,362	15.8	15.5
Central California.						
Berkeley	38,264	35,359	669	567	17.5	16.0
Oakland	115,908	110,519	2,024	1,826	17.5	16.5
Fresno	20,860	19,936	421	419	20.2	21.0
Southern California.						
Los Angeles	292,566	272,189	4,548	4,399	15.5	16.2
Pasadena	28,946	27,247	409	436	14.1	16.0
Rest of State	1,123,612	1,094,300	12,210	10.715	10.9	9.8

The birth-rate per 1,000 population is much higher for freeholders' charter cities as a class, 15.3 in 1909 and 15.0 in 1908, than for all the rest of California, only 11.3 and 10.1, respectively.

With corrections of population estimates to cover annexations of territory in five cities, the birth-rates for chartered cities in 1909 and 1908, respectively, are 15.8 and 15.5, as compared with only 10.9 and 9.8 for the rest of the State.

The birth-rates equaled or exceeded the city averages of 15.3 and 15.0 for 1909 and 1908, respectively, in the following cities: Eureka, 21.3 and 22.2; Alameda, 18.0 and 18.7; Fresno, 17.6 and 18.5; Santa Rosa, 17.6 and 17.2; Berkeley, 17.5 and 16.0; Riverside, 17.1 and 16.2; San Bernardino, 16.9 and 18.9; Vallejo, 16.8 and 17.1; San Francisco, 16.1 and 15.0; and Los Angeles, 15.1 and 15.7. The birth-rate was also above the city average for 1909 alone (15.3) for Napa, 18.2, and for San Jose, 16.2. Similarly, the birth-rate exceeded the city average only for 1908 (15.0) in Santa Cruz, 16.6, and Pasadena, 16.5

With population estimates corrected to allow for territory annexed, Oakland also shows for both 1909 and 1908 birth rates above the revised averages for chartered cities.

Counties.—The individual counties with birth-rates above the State averages of 13.4 and 12.7 in 1909 and 1908, respectively, were as follows: Santa Clara, 17.0 and 15.2; Lake, 16.7 and 14.2; San Francisco, 16.1 and 15.0; Fresno, 16.1 and 14.4; Kings, 15.5 and 13.9; Alameda, 15.4 and 14.8; Riverside, 15.1 and 14.0; Los Angeles, 14.1 and 14.4; San Mateo, 14.0 and 14.4; Nevada, 13.9 and 13.3; and Madera, 13.5 and 13.2. The birth-rate was above the general average only for 1909 (13.4) in the following counties: Sutter, 14.5; Shasta, 13.9; Colusa, 13.8; and Calaveras, 13.5. Similarly, the birth-rate was above the State average for 1908 alone (12.7) in the following counties: Alpine, 20.3; Siskiyou, 14.1; Santa Cruz, 13.1; and Marin, 12.9.

GENERAL BIRTH STATISTICS.

Sex.—The following table gives the clasification of births by sex, with per cents, for the several geographic divisions in both 1909 and 1908:

TABLE 10.—*Births classified by Sex, with Per Cents, for Geographic Divisions: 1909 and 1908.*

GEOGRAPHIC DIVISION.	Births.						Per Cent Male.		Per Cent Female.	
	Total.		Male.		Female.					
	1909.	1908.	1909.	1908	1909.	1908.	1909.	1908.	1909.	1908.
THE STATE	30,882	28,077	16,150	14,516	14,732	13,561	52.3	51.7	47.7	48.3
Northern California	3,155	2,698	1,648	1,381	1,507	1.317	52.2	51.2	47.8	48.8
Coast counties	1,336	1.151	687	580	649	571	51.4	50.4	48.6	49.6
Interior counties	1,819	1.547	961	801	858	746	52.8	51.8	47.2	48.2
Central California	18,209	16,351	9,509	8,384	8,700	7,967	52.2	51.3	47.8	48.7
San Francisco	6,630	6,058	3,449	3,067	3.181	2,991	52.0	50.6	48.0	49.4
Other bay counties	4,534	4,262	2,352	2,213	2,182	2,049	51.9	51.9	48.1	48.1
Coast counties	2,216	2,063	1,175	1,073	1,041	990	53.0	52.0	47.0	48.0
Interior counties	4,829	3,968	2,533	2,031	2,296	1,937	52.5	51.2	47.5	48.8
Southern California	9,518	9,028	4,993	4,751	4,525	4,277	52.5	52.6	47.5	47.4
Los Angeles	6,710	6,404	3,525	3,398	3,185	3,006	52.5	53.1	47.5	46.9
Other counties	2,808	2,624	1,468	1,353	1,340	1,271	52.3	51.6	47.7	48.4
Northern and Central California	21,364	19,049	11,157	9,765	10,207	9,284	52.2	51.3	47.8	48.7
Coast counties	14,716	13,534	7,663	6,933	7,053	6,601	52.1	51.2	47.9	48.8
Interior counties	6,648	5,515	3,494	2,832	3,154	2,683	52.6	51.4	47.4	48.6
Metropolitan area	11,164	10,320	5,801	5,280	5,363	5,040	52.0	51.2	48.0	48.8
Rural counties	10,200	8,729	5,356	4,485	4,844	4,244	52.5	51.4	47.5	48.6

The proportion of the sexes among the 30,882 children born in California in 1909 was: Male, 16,150, or 52.3 per cent; and female, 14,732, or 47.7 per cent. Among the 28,077 born in 1908, the proportion of the sexes was: Male, 14,516, or 51.7 per cent; and female, 13,561, or 48.3 per cent. For 1909, as compared with 1908, there was an increase of 0.6 in the per cent male, and, correspondingly, a decrease of 0.6 in the per cent female.

In 1909 the male births exceeded the female by 1,418, or 9.6 per cent, while in 1908 the excess of boys over girls was only 955, or 7.0 per cent. The male births exceeded the female in every main and minor geographic division in both 1909 and 1908. The per cent male was highest in 1909 for the coast counties of Central California, 53.0, and in 1908 for Los Angeles, 53.1. Each year the per cent was lowest for the coast counties of Northern California, 51.4 and 50.4 in 1909 and 1908, respectively.

The per cents male were higher for Los Angeles in 1909 and 1908 (52.5 and 53.1) than for the other counties of Southern California (52.3 and 51.6). However, the per cents male were lower for the metropolitan area each year (52.0 and 51.2) than for the rural counties north of Tehachapi (52.5 and 51.4).

The following table shows, for 1909 and 1908, the classification of births by sex, with per cent distributions, for the freeholders' charter cities in contrast with the rest of the State. There were twenty-six chartered cities in 1909 and twenty-four in 1908:

TABLE 11.—*Births classified by Sex, with Per Cents, for Cities and Rest of State: 1909 and 1908.*

POPULATION GROUP.	Births.						Per Cent Male.		Per Cent Female.	
	Total.		Male.		Female.					
	1909.	1908.	1909.	1908.	1909.	1908.	1909.	1908.	1909.	1908.
CALIFORNIA	30,882	28,077	16,150	14,516	14,732	13,561	52.3	51.7	47.7	48.3
Freeholders' charter cities	18,906	17,586	9,867	9,089	9,039	8,497	52.2	51.7	47.8	48.3
Rest of State	11,976	10,491	6,283	5,427	5,693	5,064	52.5	51.7	47.5	48.3

This table shows that among the 18,906 births in freeholders' charter cities in 1909 the proportion of the sexes was: Male, 9,867, or 52.2 per cent; and female, 9,039, or 47.8 per cent. The proportion of the sexes among the 17,586 births in chartered cities in 1908 was: Male, 9,089, or 51.7 per cent; and female, 8,497, or 48.3 per cent. For cities as a class there was an increase of 0.5 in the per cent male, and, conversely, a decrease of 0.5 in the per cent female.

In California outside chartered cities there were 11,976 births in 1909, classified by sex, as follows: Male, 6,283, or 52.5 per cent; and female, 5,693, or 47.5 per cent. For the State outside cities, in 1908, the 10,491 births were distributed by sex, as follows: Male, 5,427, or 51.7 per cent; and female, 5,064, or 48.3 per cent. For the rural part of the State the per cent male showed an increase of 0.8 and the per cent female a decrease of 0.8, correspondingly.

In 1909 the per cent male was 52.2 for the chartered cities, against 52.5 for the rest of Calfornia, while in 1908 the per cent male was the same for cities as for rural districts (51.7).

Race.—The following table gives the classification of births by race, as well as the per cent white, for the several geographic divisions in 1909 and 1908:

TABLE 12.—*Births classified by Race, with Per Cent, White, for Geographic Divisions: 1909 and 1908.*

GEOGRAPHIC DIVISION.	Births.						Per Cent White.
	Total.	White.	Negro.	Indian.	Chinese.	Japanese.	
1909.							
The State	30,882	29,736	222	34	208	682	96.3
Northern California	3,155	3,092	3	20	11	29	98.0
Coast counties	1,336	1,314	-------	8	3	11	98.4
Interior counties	1,819	1,778	3	12	8	18	97.7
Central California	18,209	17,482	96	5	174	452	96.0
San Francisco	6,630	6,415	19	-------	89	107	96.8
Other bay counties	4,534	4,336	39	-------	46	113	95.6
Coast counties	2,216	2,132	4	-------	12	68	96.2
Interior counties	4,829	4,599	34	5	27	164	95.2
Southern California	9,518	9,162	123	9	23	201	96.3
Los Angeles	6,710	6,426	101	3	16	164	95.8
Other counties	2,808	2,736	22	6	7	37	97.5
Northern and Central California	21,364	20,574	99	25	185	481	96.3
Coast counties	14,716	14,197	62	8	150	299	96.5
Interior counties	6,648	6,377	37	17	35	182	95.9
Metropolitan area	11,164	10,751	58	-------	135	220	96.4
Rural counties	10,200	9,823	41	25	50	261	96.3
1908.							
The State	28,077	27,190	186	19	227	455	96.8
Northern California	2,698	2,659	8	9	10	12	98.6
Coast counties	1,151	1,142	1	3	2	3	99.2
Interior counties	1,547	1,517	7	6	8	9	98.1
Central California	16,351	15,784	66	3	199	299	96.5
San Francisco	6,058	5,856	13	-------	98	91	96.7
Other bay counties	4,262	4,082	28	-------	54	98	95.8
Coast counties	2,063	2,007	4	-------	12	40	97.3
Interior counties	3,968	3,839	21	8	35	70	96.7
Southern California	9,028	8,747	112	7	18	144	96.9
Los Angeles	6,404	6,182	87	4	17	114	96.5
Other counties	2,624	2,565	25	3	1	30	97.8
Northern and Central California	19,049	18,443	74	12	209	311	96.8
Coast counties	13,534	13,087	46	3	166	232	96.7
Interior counties	5,515	5,356	28	9	43	79	97.1
Metropolitan area	10,320	9,938	41	-------	152	189	96.3
Rural counties	8,729	8,505	33	12	57	122	97.4

It appears from this table that the race distribution of the 30,882 births in California in 1909 was: White, 29,736, or 96.3 per cent; Japanese, 682; negro, 222; Chinese, 208; and Indian, 34. In 1908 the race distribution of the 28,077 births was: White, 27,190, or 96.8 per cent; Japanese, 455; Chinese, 227; negro, 186; and Indian, 19. There was a decrease of 0.5 in the per cent white, 96.3 in 1909 against 96.8 in 1908. Each year the Japanese were the leading non-Caucasians represented in births, the negroes being next in 1909 and the Chinese next in 1908.

In 1909 and 1908 the per cent white was highest in Northern California (98.0 and 98.6), next in Southern California (96.3 and 96.9), and lowest in Central California (96.0 and 96.5). Among the minor geographic divisions the per cent white ranged from 98.4 and 99.2 for the coast counties of Northern California in 1909 and 1908, respectively, to 95.6 and 95.8 for the bay counties other than San Francisco.

Each year the per cents white were less for Los Angeles (95.8 in 1909 and 96.5 in 1908) than for the other counties of Southern California (97.5 and 97.8). However, the per cents white were much greater for San Francisco than for the other bay counties, being 96.8 and 96.7 for the metropolis against 95.6 and 95.8 for the suburbs.

The following table gives the race distribution of births, with the per cent white, for the twenty-six chartered cities in 1909 and the twenty-four in 1908, in contrast with the rest of the State:

TABLE 13.—*Births classified by Race, with Per Cent White, for Cities and Rest of State: 1909 and 1908.*

POPULATION GROUP.	Births.						Per Cent White.
	Total.	White.	Negro.	Indian.	Chinese.	Japanese.	
1909.							
CALIFORNIA	30,882	29,736	222	34	208	682	96.3
Freeholders' charter cities	18,906	18,163	171	5	161	406	96.1
Rest of State	11,976	11,573	51	29	47	276	96.6
1908.							
CALIFORNIA	28,077	27,190	186	19	227	455	96.8
Freeholders' charter cities	17,586	16,949	143	5	185	304	96.4
Rest of State	10,491	10,241	43	14	42	151	97.6

This table shows that among the 18,906 births in chartered cities in 1909, the race distribution was: White, 18,163, or 96.1 per cent: Japanese, 406; negro, 171; Chinese, 161; and Indian, 5. The race distribution of the 17,586 births in cities in 1908 was: White, 16,949, or 96.4 per cent; Japanese, 304; Chinese, 185; negro, 143; and Indian, 5. There was a decrease of 0.3 in the per cent white, 96.1 in 1909 and 96.4 in 1908.

For the State, exclusive of chartered cities, there were 11,976 births in 1909 distributed by race as follows: White, 11,573, or 96.6 per cent; Japanese, 276; negro, 51; Chinese, 47; and Indian, 29. There were 10,491 births in California outside cities in 1908, distributed by race, as follows: White, 10,241, or 97.6 per cent; Japanese, 151; negro, 43; Chinese, 42; and Indian, 14. For the rural part of the State the per cent white showed a decrease of 1.0, being 96.6 for 1909 against 97.6 for 1908.

In 1909 the per cent white was less by 0.5 for cities than for rural districts (96.1 as compared with 96.6), while in 1908 the per cent white was less by 1.2 for the chartered cities than for the rest of California (96.4 against 97.6).

Sex and Race.—In the table below births of whites and non-Caucasians are classified by sex, with per cents, for both 1909 and 1908. There were so few births of non-Caucasians in some geographic divisions that figures are presented here only for the twenty-six chartered cities in 1909 and the twenty-four in 1908, as contrasted with the rest of the State.

TABLE 14.—*Births classified by Sex and Race, with Per Cents by Sex, for Cities and Rest of State: 1909 and 1908.*

POPULATION GROUP.	Births.						Per Cent Male.		Per Cent Female.	
	Total.		Male.		Female.					
	1909.	1908.	1909.	1908.	1909.	1908.	1909.	1908.	1909.	1908.
WHITE.										
California	29,736	27,190	15,516	14,044	14,220	13,146	52.2	51.7	47.8	48.3
Freeholders' charter cities	18,163	16,949	9,470	8,767	8,693	8,182	52.1	51.7	47.9	48.3
Rest of State	11,573	10,241	6,046	5,277	5,527	4,964	52.2	51.5	47.8	48.5
NON-CAUCASIAN.										
California	1,146	887	634	472	512	415	55.3	53.2	44.7	46.8
Freeholders' charter cities	743	637	397	322	346	315	53.4	50.5	46.6	49.5
Rest of State	403	250	237	150	166	100	58.8	60.0	41.2	40.0

This table shows that, in general, the preponderance of males was much greater among the few non-Caucasian births than among the many white births. Thus, in 1909 and 1908, respectively, the per cents male were 55.3 and 53.2 for non-Caucasians against 52.2 and 51.7 for whites in the State as a whole; 53.4 and 50.5 for non-Caucasians against 52.1 and 51.7 for whites in chartered cities as a class; and no less than 58.8 and 60.0 for non-Caucasians against 52.2 and 51.5 for all the rest of California.

Nativity of White Mothers.—The analysis of births by race may be extended to a consideration of births according to the nativity of white mothers—classified as born in California, born in other states, or foreign born. The cases where the nativity of the white mothers could not be determined from the birth certificates totaled only 88, or 0.3 per cent, in 1909 and only 146, or 0.5 per cent, in 1908. These few have been included with the mothers born in other states than California, because it seems less likely that the nativity would be unknown or not given for mothers born in this State or in foreign countries than for mothers born somewhere or other in the United States.

The following table shows the nativity of white mothers, by numbers and per cents, for the several geographic divisions in both 1909 and 1908:

TABLE 15.—*White Mothers classified by Nativity, with Per Cents, for Geographic Divisions: 1909 and 1908.*

GEOGRAPHIC DIVISION.	White Mothers.				Per Cent.		
	Total	Born in California.	Born in Other States.*	Foreign Born.	Born in California.	Born in Other States.	Foreign Born.
1909.							
THE STATE	29,736	10,544	10,700	8,492	35.5	36.0	28.5
Northern California	3,092	1,673	880	539	54.1	28.5	17.4
Coast counties	1,314	673	327	314	51.2	24.9	23.9
Interior counties	1,778	1,000	553	225	56.2	31.1	12.7
Central California	17,482	7,286	4,504	5,692	41.7	25.8	32.5
San Francisco	6,415	2,675	1,069	2,671	41.7	16.7	41.6
Other bay counties	4,336	1,790	1,126	1,420	41.3	26.0	32.7
Coast counties	2,132	926	625	581	43.4	29.3	27.3
Interior counties	4,599	1,895	1,684	1,020	41.2	36.6	22.2
Southern California	9,162	1,585	5,316	2,261	17.3	58.0	24.7
Los Angeles	6,426	960	3,740	1,726	14.9	58.2	26.9
Other counties	2,736	625	1,576	535	22.8	57.6	19.6
Northern and Central California	20,574	8,959	5,384	6,231	43.5	26.2	30.3
Coast counties	14,197	6,064	3,147	4,986	42.7	22.2	35.1
Interior counties	6,377	2,895	2,237	1,245	45.4	35.1	19.5
Metropolitan area	10,751	4,465	2,195	4,091	41.5	20.4	38.1
Rural counties	9,823	4,494	3,189	2,140	45.7	32.5	21.8
1908.							
THE STATE	27,190	9,469	10,099	7,622	34.8	37.2	28.0
Northern California	2,659	1,371	816	472	51.6	30.7	17.7
Coast counties	1,142	547	312	283	47.9	27.3	24.8
Interior counties	1,517	824	504	189	54.3	33.2	12.5
Central California	15,784	6,440	4,122	5,222	40.8	26.1	33.1
San Francisco	5,856	2,328	1,083	2,450	39.7	18.5	41.8
Other bay counties	4,082	1,639	1,131	1,312	40.2	27.7	32.1
Coast counties	2,007	922	539	546	45.9	26.9	27.2
Interior counties	3,839	1,556	1,369	914	40.5	35.7	23.8
Southern California	8,747	1,658	5,161	1,928	19.0	59.0	22.0
Los Angeles	6,182	1,031	3,667	1,484	16.7	59.3	24.0
Other counties	2,565	627	1,494	444	24.4	58.3	17.3
Northern and Central California	18,443	7,811	4,938	5,694	42.3	26.8	30.9
Coast counties	13,087	5,431	3,065	4,591	41.5	28.4	35.1
Interior counties	5,356	2,380	1,873	1,103	44.4	35.0	20.6
Metropolitan area	9,938	3,962	2,214	3,762	39.9	22.3	37.8
Rural counties	8,505	3,849	2,724	1,932	45.3	32.0	22.7

*Includes those of unknown nativity, numbering in the entire State only 88, or 0.3 per cent, in 1909 and 146, or 0.5 per cent, in 1908.

It appears from this table that of the mothers of the 29,736 white children born in California in 1909, 10,700, or 36.0 per cent, were themselves born in other states; 10,544, or 35.5 per cent, were born in this State; and 8,492, or 28.5 per cent, were born in foreign countries. Of the 27,190 white mothers bearing children in 1908, those born elsewhere in the United States were 10,099, or 37.2 per cent; those born in California were 9,469, or 34.8 per cent; and those born abroad were

7,622, or 28.0 per cent. There was an increase of 0.7 in the per cent of white mothers born in California (35.5 in 1909 against 34.8 in 1908) and an increase of 0.5 in the per cent born abroad (28.5 against 28.0). On the other hand, there was a decrease of 1.2 in the per cent of white mothers born in other states (36.0 against 37.2).

The proportion of white mothers born in other states is very high for Southern California, but is quite low for Northern and Central California, especially the latter. The per cents born elsewhere in the United States were 58.0 and 59.0 for the counties south of Tehachapi in 1909 and 1908 as compared with 26.2 and 26.8 for those to the north, being 28.5 and 30.7 for Northern California and only 25.8 and 26.1 for Central California. The per cents were 58.2 and 59.3 for Los Angeles against 57.6 and 58.3 for the rest of Southern California. However, the per cents were only 20.4 and 22.3 for the metropolitan area as compared with 32.5 and 32.0 for the rural counties north of Tehachapi, and were merely 16.7 and 18.5 for San Francisco against 26.0 and 27.7 for the other bay counties.

The proportion of mothers who were themselves native daughters is very high for both Northern and Central California but very low for Southern California. The per cents of mothers born in the Golden State in 1909 and 1908, respectively, were 54.1 and 51.6 for Northern California, and 41.7 and 40.8 for Central California, or 43.5 and 42.3 for both together, as compared with merely 17.3 and 19.0 for the counties south of Tehachapi. The per cents were as little as 14.9 and 16.7 for Los Angeles against 22.8 and 24.4 for the other counties of Southern California. The per cents were likewise less for the metropolitan area than for the rural counties north of Tehachapi, being 41.5 and 39.9 for the former against 45.7 and 45.3 for the latter. The per cents born in California were not far from the same for San Francisco and the other bay counties, being 41.7 and 41.3 in 1909 and 39.7 and 40.2, respectively, in 1908.

The proportion of foreign born mothers of the white race is notably high only for Central California, especially in San Francisco and the other bay counties. The per cents born abroad in 1909 and 1908, respectively, were 32.5 and 33.1 for Central California as compared with merely 24.7 and 22.0 for Southern California, and 17.4 and 17.7 for Northern California. The per cents for the counties north of Tehachapi were 30.3 and 30.9, being no less than 38.1 and 37.8 for the metropolitan area against only 21.8 and 22.7 for the rural counties. The per cents born abroad were as great as 41.6 and 41.8 among mothers in the metropolis proper as compared with 32.7 and 32.1 for those in the suburban counties.

The table below gives numbers and per cents, showing the nativity of white mothers for the twenty-six chartered cities in 1909 and the twenty-four in 1908, as compared with all the rest of California:

TABLE 16.—*White Mothers classified by Nativity, with Per Cents, for Cities and Rest of State: 1909 and 1908.*

POPULATION GROUP.	White Mothers				Per Cent.		
	Total.	Born in California.	Born in Other States.*	Foreign Born.	Born in California.	Born in Other States.	Foreign Born.
1909.							
CALIFORNIA	29,736	10,544	10,700	8,492	35.5	36.0	28.5
Freeholders' charter cities	18,163	6,063	6,196	5,904	33.4	34.1	32.5
Rest of state	11,573	4,481	4,504	2,588	38.7	38.9	22.4
1908.							
CALIFORNIA	27,190	9,469	10,099	7,622	34.8	37.2	28.0
Freeholders' charter cities	16,949	5,500	6,131	5,318	32.4	36.2	31.4
Rest of state	10,241	3,969	3,968	2,304	38.8	38.7	22.5

*Includes those of unknown nativity, numbering in the entire State only 88, or 0.3 per cent, in 1909 and 146, or 0.5 per cent, in 1908.

This table shows that of the 18,163 mothers of white children born in freeholders' charter cities in 1909, 6,196, or 34.1 per cent, were natives of other states; 6,063, or 33.4 per cent, were natives of California; and 5,904, or 32.5 per cent, were natives of foreign countries. Of the 16,949 white mothers bearing children in chartered cities in 1908, those born elsewhere in the United States were 6,131, or 36.2 per cent; those born in California were 5,500, or 32.4 per cent; and those born abroad were 5,318, or 31.4 per cent. There was an increase of 1.0 in the per cent of white mothers, in cities, born in California (33.4 in 1909 against 32.4 in 1908), and there was also an increase of 1.1 in the per cent born abroad (32.5 against 31.4). On the other hand there was a decrease of 2.1 in the per cent of mothers, in cities, born in other states (34.1 against 36.2).

In the State outside cities there were 11,573 births of white children in 1909, with mothers born as follows: Other states, 4,504, or 38.9 per cent; California, 4,481, or 38.7 per cent; foreign countries, 2,588, or 22.4 per cent. In 1908 there were 10,241 white children born in the rural part of the State, with maternal nativity as follows: California, 3,969, or 38.8 per cent; other states, 3,968, or 38.7 per cent; and foreign, 2,304, or 22.5 per cent. The per cent distribution of white mothers by nativity was substantially the same for rural districts in both 1909 and 1908, corresponding per cents differing by only 0.2 or 0.1.

The per cents American born, whether in California or other states, were less each year for chartered cities than for rural districts, while the per cent foreign born was much greater within cities than outside them. The excess in the per cent of mothers born in this State for rural districts over that for cities was 5.3 in 1909 (38.7 against 33.4), and 6.4 in 1908 (38.8 against 32.4). Similarly, the excess in the per cent born elsewhere in the United States for the rural over the urban districts was 4.8 in 1909 (38.9 against 34.1), and 2.5 in 1908 (38.7

against 36.2). On the other hand, the excess in the per cent born abroad among white mothers in cities over that among mothers in the country districts was no less than 10.1 in 1909 (32.5 against 22.4), and 8.9 in 1908 (31.4 against 22.5).

As in the State as a whole, so in the cities reporting the bulk of all births, the mothers born in other states outnumbered each year those born in California, with foreign born mothers a close third in cities. In the territory outside cities, however, the totals were not far from the same for Californian as for other American mothers, each surpassing the foreign born greatly.

Sex and Nativity of White Mothers.—In the study of sex and race, *ante*, it was found that the preponderance of male births was much greater among non-Caucasians than among whites. The following table has been prepared to show the proportion of the sexes among children born to white mothers classified by nativity. Only the per cent distribution, by sex, is given here, but the absolute figures are presented in Table 27, page 74:

TABLE 17.—*Per Cent Distribution, by Sex, of White Children with Mothers classified by Nativity, for Geographic Divisions: 1909 and 1908.*

GEOGRAPHIC DIVISION.	White Children.											
	Per Cent Male Among Those With Mothers—						Per Cent Female Among Those With Mothers—					
	Born in California.		Born in Other States.		Foreign Born.		Born in California.		Born in Other States		Foreign Born.	
	1909	1908.	1909.	1908	1909.	1908.	1909.	1908.	1909.	1908.	1909.	1908.
THE STATE	51.8	50.9	52.1	52.6	52.8	51.3	48.2	49.1	47.9	47.4	47.2	48.7
Northern California	51.1	51.2	52.8	52.6	53.6	48.3	48.9	48.8	47.2	47.4	46.4	51.7
Coast counties	48.9	52.8	54.7	50.6	53.5	46.3	51.1	47.2	45.3	49.4	46.5	53.7
Interior counties	52.6	50.1	51.7	53.8	53.8	51.3	47.4	49.9	48.3	46.2	46.2	48.7
Central California	51.8	50.7	51.9	51.6	52.4	51.5	48.2	49.3	48.1	48.4	47.6	48.5
San Francisco	52.7	49.7	50.3	52.3	51.7	50.6	47.3	50.3	49.7	47.7	48.3	49.4
Other bay counties	50.8	51.3	51.6	53.1	53.2	52.3	49.2	48.7	48.4	46.9	46.8	47.7
Coast counties	51.8	51.7	53.0	50.1	53.9	54.0	48.2	48.3	47.0	49.9	46.1	46.0
Interior counties	51.5	51.0	52.6	50.3	52.2	51.2	48.5	49.0	47.4	49.7	47.8	48.8
Southern California	52.6	51.1	52.1	53.5	53.5	51.4	47.4	48.9	47.9	46.5	46.5	48.6
Los Angeles	53.5	51.6	51.7	54.2	54.1	51.5	46.5	48.4	48.3	45.8	45.9	48.5
Other counties	51.0	50.4	53.1	51.7	51.4	51.1	49.0	49.6	46.9	48.3	48.6	48.9
Northern and Central California	51.7	50.8	52.0	51.7	52.5	51.2	48.3	49.2	48.0	48.3	47.5	48.8
Coast counties	51.6	50.8	51.8	52.0	52.5	51.2	48.4	49.2	48.2	48.0	47.5	48.8
Interior counties	51.9	50.7	52.4	51.3	52.4	51.2	48.1	49.3	47.6	48.7	47.6	48.8
Metropolitan area	51.9	50.4	51.0	52.7	52.2	51.2	48.1	49.6	49.0	47.3	47.8	48.8
Rural counties	51.4	51.3	52.7	51.0	53.0	51.3	48.6	48.7	47.3	49.0	47.0	48.7

The per cent of male births in California in 1909 was 52.8 for foreign born mothers, 52.1 for those born in other states, and 51.8 for those born in this State, while in 1908 the per cent male was 52.6 for mothers born in other states, 51.3 for those born abroad, and only 50.9 for those born in California. Each year the per cent male was lower among children of Californian mothers than among those of other American or foreign born mothers, the proportion of male births being greatest for the foreign born in 1909 but for other Americans in 1908.

Differences like those here noticed between the per cents for the State in 1909 and 1908 occur also among the per cents for the several geographic divisions each year, so that it is impossible to draw general conclusions from these figures about the effect of maternal nativity on the preponderance of male births.

The following table presents similar figures for freeholders' charter cities in contrast with the rest of California. The numbers on which the per cents were based appear in Table 28, page 77:

TABLE 18.—*Per Cent Distribution, by Sex, of White Children with Mothers classified by Nativity, for Cities and Rest of State: 1909 and 1908.*

POPULATION GROUP.	White Children.											
	Per Cent Male Among Those With Mothers—						Per Cent Female Among Those With Mothers—					
	Born in California.		Born in Other States.		Foreign Born.		Born in California.		Born in Other States.		Foreign Born.	
	1909.	1908.	1909.	1908.	1609.	1908.	1909.	1908.	1909.	1908.	1909	1908.
CALIFORNIA	51.8	50.9	52.1	52.6	52.8	51.8	48.2	49.1	47.9	47.4	47.2	48.7
Freeholders' charter cities	52.2	51.0	52.0	52.9	52.2	51.0	47.8	49.0	48.0	47.1	47.8	49.0
Rest of State	51.3	50.6	52.2	52.2	54.0	52.0	48.7	49.4	47.8	47.8	46.0	48.0

In chartered cities the per cent of male births was 52.2 in 1909 and 51.0 in 1908 for both Californian and foreign born mothers, as compared with 52.0 and 52.9 for other American mothers. That is, in cities where the three elements of the population are about equally represented, the preponderance of males was much the same for each class in 1909 though by far greatest in 1908 for mothers born in other states than California.

In rural districts, where the foreign born element is least numerous. the per cent male was 54.0 in 1909 and 52.0 in 1908 among children of foreign born mothers; 52.2 each year among children of mothers born in other states; and only 51.3 in 1909 and 50.6 in 1908 among children of mothers who were themselves natives of this State. The Californian and other American mothers are equally represented in the rural districts, and here the preponderance of male births was much greater each year for mothers born in other states than for those born in California.

NATIVITY OF BRIDES AND MOTHERS.

Nativity of White Brides and Mothers.—Some facts of interest are disclosed by a comparison of the nativity of white brides and mothers in California. Accordingly, the following table is presented giving, for the several geographic divisions in 1909 and 1908, the per cent distribution of white brides and white mothers by nativity:

TABLE 19.—*Per Cent Distribution, by Nativity, of White Brides and White Mothers, for Geographic Divisions: 1909 and 1908.*

GEOGRAPHIC DIVISION.	Per Cent Born in California.		Per Cent Born in Other States.		Per Cent Foreign Born.	
	White Brides.	White Mothers.	White Brides.	White Mothers.	White Brides.	White Mothers.
1909.						
THE STATE	40.7	35.5	40.3	36.0	19.0	28.5
Northern California	59.7	54.1	29.1	28.5	11.2	17.4
Coast counties	57.7	51.2	25.5	24.9	16.8	23.9
Interior counties	61.5	56.2	32.3	31.1	6.2	12.7
Central California	48.4	41.7	28.9	25.8	22.7	32.5
San Francisco	46.1	41.7	22.6	16.7	31.3	41.6
Other bay counties	49.7	41.3	29.9	26.0	20.4	32.7
Coast counties	53.7	43.4	27.9	29.3	18.4	27.3
Interior counties	47.2	41.2	35.6	36.6	17.2	22.2
Southern California	22.1	17.3	63.1	58.0	14.8	24.7
Los Angeles	20.2	14.9	64.1	58.2	15.7	26.9
Other counties	25.6	22.8	61.2	57.6	13.2	19.6
Northern and Central California	49.9	43.5	28.9	26.2	21.2	30.3
Coast counties	49.7	42.7	26.3	22.2	24.0	35.1
Interior counties	50.6	45.4	34.8	35.1	14.6	19.5
Metropolitan area	47.8	41.5	26.1	20.4	26.1	38.1
Rural counties	52.3	45.7	32.0	32.5	15.7	21.8
1908.						
THE STATE	40.5	34.8	39.2	37.2	20.3	28.0
Northern California	58.3	51.6	28.6	30.7	13.1	17.7
Coast counties	56.6	47.9	24.5	27.3	18.9	24.8
Interior counties	60.0	54.3	32.8	33.2	7.2	12.5
Central California	48.3	40.8	28.3	26.1	23.4	33.1
San Francisco	45.7	39.7	22.0	18.5	32.3	41.8
Other bay counties	47.7	40.2	30.1	27.7	22.2	32.1
Coast counties	54.7	45.9	27.4	26.9	17.9	27.2
Interior counties	48.7	40.5	34.3	35.7	17.0	23.8
Southern California	20.3	19.0	63.1	59.0	16.6	22.0
Los Angeles	17.9	16.7	64.6	59.3	17.5	24.0
Other counties	24.7	24.4	60.2	58.3	15.1	17.3
Northern and Central California	49.6	42.3	28.4	26.8	22.0	30.9
Coast counties	48.9	41.5	26.0	23.4	25.1	35.1
Interior counties	51.3	44.4	33.9	35.0	14.8	20.6
Metropolitan area	46.7	39.9	25.9	22.3	27.4	37.8
Rural counties	52.8	45.3	31.1	32.0	16.1	22.7

It appears from this table that the per cents of white brides born in California in 1909 and 1908 were 40.7 and 40.5, but that the per cents of native daughters among white mothers were only 35.5 and 34.8, respectively. The excess in the per cent born in California among brides over that among mothers was 5.2 in 1909 (40.7 against 35.5) and 5.7 in 1908 (40.5 against 34.8). In every main and minor geographic division in both 1909 and 1908 a larger per cent of white brides than of white mothers were natives of this State.

The per cents of white brides born in other states were 40.3 and 39.2 in 1909 and 1908, while the per cents born elsewhere in the United States were somewhat less among white mothers, 36.0 and 37.2, respectively. The excess in the per cent born in other states for brides over that for mothers was 4.3 in 1909 (40.3 against 36.0) and 2.0 in 1908 (39.2 against 37.2). For the coast counties of Central California in 1909 alone, for the interior counties of Central California in both 1909 and 1908, and for the coast and interior counties of Northern California in 1908 alone, the per cents born elsewhere in the United States were greater among white mothers than among white brides. For the remaining geographic divisions, however, a larger per cent of the white brides than of the white mothers in California were born in other states.

The per cents foreign born in 1909 and 1908 were only 19.0 and 20.3 among white brides against no less than 28.5 and 28.0 among white mothers. The per cent born abroad among mothers exceeded that among brides by 9.5 in 1909 (28.5 against 19.0) and by 7.7 in 1908 (28.0 against 20.3). In every geographic division each year a much larger per cent of the white mothers than of the white brides were foreign born.

The following table shows, for the several geographic divisions in 1909 and 1908, the results of comparing the per cent distribution, by nativity, of white brides and mothers:

TABLE 20.—*Comparison of Per Cent Distribution, by Nativity, of White Brides and White Mothers, for Geographic Divisions: 1909 and 1908.*

GEOGRAPHIC DIVISION.	Excess in Per Cent Born in California for White *Brides* Over that for White *Mothers*.		Excess in Per Cent Born in Other States for White *Brides* Over that for White *Mothers*.		Excess in Per Cent Foreign Born for White *Mothers* Over that for White *Brides*.	
	1909.	1908.	1909.	1908	1909.	1908.
THE STATE	5.2	5.7	4.3	2.0	9.5	7.7
Northern California	5.6	6.7	0.6	—2.1	6.2	4.6
Coast counties	6.5	8.7	0.6	—2.8	7.1	5.9
Interior counties	5.3	5.7	1.2	—0.4	6.5	5.3
Central California	6.7	7.5	3.1	2.2	9.8	9.7
San Francisco	4.4	6.0	5.9	3.5	10.3	9.5
Other bay counties	8.4	7.5	3.9	2.4	12.3	9.9
Coast counties	10.3	8.8	—1.4	0.5	8.9	9.3
Interior counties	6.0	8.2	—1.0	—1.4	5.0	6.8
Southern California	4.8	1.3	5.1	4.1	9.9	5.4
Los Angeles	5.3	1.2	5.9	5.3	11.2	6.5
Other counties	2.8	0.3	3.6	1.9	6.4	2.2
Northern and Central California	6.4	7.3	2.7	1.6	9.1	8.9
Coast counties	7.0	7.4	4.1	2.6	11.1	10.0
Interior counties	5.2	6.9	—0.3	—1.1	4.9	5.8
Metropolitan area	6.3	6.8	5.7	3.6	12.0	10.4
Rural counties	6.6	7.5	—0.5	—0.9	6.1	6.6

The per cents born in California were considerably greater each year among brides than among mothers, and the per cents born in other states were likewise greater, though in less degree, among brides than among mothers. On the other hand, the per cents foreign born were much greater each year for white mothers than for white brides.

The excess in the per cent born in California for brides over that for mothers was much greater for the counties north of Tehachapi, 6.4 in 1909 and 7.3 in 1908, than for those to the south, 4.8 and 1.3, respectively. However, the proportion of native daughters among both brides and mothers is much greater anyway in Northern and Central California than in Southern California. The excess in the per cents for brides over those for mothers was somewhat less for the metropolitan area (6.3 in 1909 and 6.8 in 1908) than for the rural counties north of Tehachapi (6.6 and 7.5, respectively). The excess was likewise less for the metropolis proper (4.4 and 6.0) than for the suburban counties (8.4 and 7.5).

The excess in the per cent born in other states for brides over that for mothers was considerably greater for the counties south of Tehachapi (5.1 in 1909 and 4.1 in 1908) than for those to the north (2.7 and 1.6, respectively). It must be remembered, however, that the proportion of both brides and mothers born in other states is particularly great for Southern California, but relatively small for Northern as well as Central California. In the metropolitan area a much larger proportion of the brides than of the mothers were born elsewhere in the United States, the excess in the per cent for brides being 5.7 for 1909 and 3.6 for 1908; in the rural counties north of Tehachapi, on the contrary, a slightly greater proportion of the mothers than of the brides were born in other states, the excess in the per cents for mothers being 0.5 and 0.9 for 1909 and 1908, respectively. The excess in the per cent born in other states among brides over that among mothers was considerably greater for San Francisco (5.9 and 3.5) than for the other bay counties (3.9 and 2.4).

The marked excess in the per cent foreign born among mothers over that among brides was greatest, generally speaking, in Central California (9.8 in 1909 and 9.7 in 1908); next in Southern California (9.9 and 5.4); and least in Northern California (6.2 and 4.6). It is in these geographic divisions that the proportions foreign born among both mothers and brides are likewise greatest in the same order as here stated for the excess of foreign mothers over foreign brides. For Northern and Central California together the excess in the per cent of foreign born mothers over that of foreign born brides was 9.1 in 1909 and 8.9 in 1908. In the metropolitan area, where the foreign born element mainly abounds, the excess in the per cent of foreign born mothers over that of foreign born brides was as great as 12.0 in 1909 and 10.4 in 1908 as compared with only 6.1 and 6.6, respectively, for the rural counties north of Tehachapi. However, though San Francisco has a much larger proportion of foreign born inhabitants than the other bay counties, yet the excess in the per cent of foreign born mothers over that of foreign brides was somewhat greater for the suburbs (12.3 and 9.9) than for the metropolis (10.3 and 9.5).

Nativity of Single White Brides and White Mothers.—Since the marriages in which the brides were single are more apt to be blessed with children than those in which the brides were widowed or divorced, it may be even more instructive to compare the nativity of white mothers, not merely with that of all white brides, but rather with the nativity of the single white brides alone. The following table has, therefore, been prepared to show, for the several geographic divisions in 1909 and 1908, the per cent distribution, by nativity, of single white brides and white mothers:

TABLE 21.—*Per Cent Distribution, by Nativity, of Single White Brides and White Mothers, for Geographic Divisions: 1909 and 1908.*

GEOGRAPHIC DIVISION.	Per Cent Born in California.		Per Cent Born in Other States.		Per Cent Foreign Born.	
	Single White Brides.	White Mothers.	Single White Brides.	White Mothers.	Single White Brides.	White Mothers.
1909.						
THE STATE	43.3	35.5	37.8	36.0	18.9	28.5
Northern California	64.3	54.1	24.8	28.5	10.9	17.4
Coast counties	61.6	51.2	21.4	24.9	17.0	23.9
Interior counties	66.8	56.2	28.1	31.1	5.1	12.7
Central California	50.8	41.7	26.6	25.8	22.6	32.5
San Francisco	48.3	41.7	20.0	16.7	31.7	41.6
Other bay counties	52.5	41.3	27.6	26.0	19.9	32.7
Coast counties	56.5	43.4	26.3	29.3	17.2	27.3
Interior counties	49.4	41.2	33.7	36.6	16.9	22.2
Southern California	24.2	17.3	61.2	58.0	14.6	24.7
Los Angeles	21.7	14.9	62.8	58.2	15.5	26.9
Other counties	28.8	22.8	58.3	57.6	12.9	19.6
Northern and Central California	52.6	43.5	26.4	26.2	21.0	30.3
Coast counties	52.3	42.7	23.8	22.2	23.9	35.1
Interior counties	53.3	45.4	32.5	35.1	14.2	19.5
Metropolitan area	50.2	41.5	23.6	20.4	26.2	38.1
Rural counties	55.2	45.7	29.5	32.5	15.3	21.8
1908.						
THE STATE	43.5	34.8	36.5	37.2	20.0	28.0
Northern California	62.4	51.6	25.5	30.7	12.1	17.7
Coast counties	59.9	47.9	22.7	27.3	17.4	24.8
Interior counties	65.0	54.3	28.5	33.2	6.5	12.5
Central California	51.0	40.8	25.9	26.1	23.1	33.1
San Francisco	47.7	39.7	20.2	18.5	32.1	41.8
Other bay counties	51.1	40.2	27.5	27.7	21.4	32.1
Coast counties	58.0	45.9	24.9	26.9	17.1	27.2
Interior counties	51.5	40.5	31.5	35.7	17.0	23.8
Southern California	23.0	19.0	60.8	59.0	16.2	22.0
Los Angeles	20.0	16.7	62.7	69.3	17.3	24.0
Other counties	28.7	24.4	57.2	58.3	14.1	17.3
Northern and Central California	52.6	42.3	25.8	26.8	21.6	30.9
Coast counties	51.7	41.5	23.7	23.4	24.6	35.1
Interior counties	54.6	44.4	30.8	35.0	14.6	20.6
Metropolitan area	49.3	39.9	23.6	22.3	27.1	37.8
Rual counties	56.2	45.3	28.2	32.0	15.6	22.7

When the contrast is drawn between the nativity of single white brides and of white mothers, the excess heretofore noted in the per cents foreign born among mothers over brides is found also in the per cents for mothers over the single brides alone. However, while the per cents born in other states were somewhat greater for all brides than for mothers in both 1909 and 1908, the per cents born elsewhere in the United States were greater for single white brides than for white mothers only in 1909, being greater for mothers than for single brides in 1908. The excess in the per cent born in California among brides as compared with mothers becomes even greater when the widowed and divorced brides are eliminated and only the single brides are considered.

The table shows that the per cent of single white brides born in California was no less than 43.3 in 1909 and 43.5 in 1908, while the corresponding per cents for white mothers were only 35.5 and 34.8, respectively. The excess in the per cent of native daughters among single white brides over that among mothers was 7.8 in 1909 (43.3 as compared with 35.5) and was 8.7 in 1908 (43.5 as compared with 34.8). In all parts of the State both years a considerably larger proportion of the single white brides than of the mothers were born in California.

The per cent of single white brides born in other states was 37.8 in 1909 as compared with 36.0 for white mothers, an excess of 1.8 in the per cent for brides. In 1908, on the other hand, the per cent born elsewhere in the United States was only 36.5 for single white brides, against 37.2 for white mothers, an excess of 0.7 in the per cent for mothers. The excess in the per cent of single white brides born in other states over that for white mothers observed for 1909 was confined, however, to San Francisco and the other bay counties and to Los Angeles and the other counties south of Tehachapi, while in 1908 there was a similar excess in the per cent for single brides over that for mothers merely for San Francisco and Los Angeles alone. In most of the geographic divisions, therefore, especially for 1908, the per cents born elsewhere in the United States were somewhat greater among mothers than among single brides.

The per cents foreign born in 1909 and 1908 were only 18.9 and 20.0 among single white brides, in contrast with no less than 28.5 and 28.0 among white mothers. The per cent born abroad for mothers surpassed that for single brides by 9.6 in 1909 (28.5 against 18.9) and by 8.0 in 1908 (28.0 against 20.0). In every geographic division each year the per cent foreign born was decidedly higher for white mothers than for single white brides.

The following table gives a measure of the contrast between the per cent distribution, by nativity, of single white brides and white mothers for the several geographic divisions in 1909 and 1908:

TABLE 22.—*Comparison of Per Cent Distribution, by Nativity, of Single White Brides and White Mothers, for Geographic Divisions: 1909 and 1908.*

GEOGRAPHIC DIVISION.	Excess in Per Cent Born in California for Single White *Brides* Over that for White *Mothers*.		Excess in Per Cent Born in Other States for Single White *Brides* Over that for White *Mothers*.		Excess in Per Cent Foreign Born for White *Mothers* Over that for Single White *Brides*.	
	1909.	1908.	1909	1908.	1909.	1908.
THE STATE	7.8	8.7	1.8	—0.7	9.6	8.0
Northern California	10.2	10.8	—3.7	—5.2	6.5	5.6
Coast counties	10.4	12.0	—3.5	—4.6	6.9	7.4
Interior counties	10.6	10.7	—3.0	—4.7	7.6	6.0
Central California	9.1	10.2	0.8	—0.2	9.9	10.0
San Francisco	6.6	8.0	3.3	1.7	9.9	9.7
Other bay counties	11.2	10.9	1.6	—0.2	12.8	10.7
Coast counties	13.1	12.1	—3.0	—2.0	10.1	10.1
Interior counties	8.2	11.0	—2.9	—4.2	5.3	6.8
Southern California	6.9	4.0	3.2	1.8	10.1	5.8
Los Angeles	6.8	3.3	4.6	3.4	11.4	6.7
Other counties	6.0	4.3	0.7	—1.1	6.7	3.2
Northern and Central California	9.1	10.3	0.2	—1.0	9.3	9.3
Coast counties	9.6	10.2	1.6	0.3	11.2	10.5
Interior counties	7.9	10.2	—2.6	—4.2	5.3	6.0
Metropolitan area	8.7	9.4	3.2	1.3	11.9	10.7
Rural counties	9.5	10.9	—3.0	—3.8	6.5	7.1

The single white brides surpassed the white mothers in the per cent born in California for both 1909 and 1908 and in the per cent born in other states for 1909 alone, while the mothers surpassed the single brides in the per cent born in other states for 1908 and in the per cent foreign born for 1909 as well as 1908. Generally speaking, there was a marked excess in the per cent born in California among single brides over that among mothers; relatively little difference in the per cents born elsewhere in the United States for single brides and mothers; and a very great excess in the per cent born abroad among mothers over that for single brides.

The excess in the per cent born in California among single brides over that among mothers was much greater for Northern and Central California, 9.1 in 1909 and 10.3 in 1908, than for Southern California, 6.9 and 4.0, respectively. In all cases, however, the proportions born in the Golden State are much greater for the counties north of Tehachapi than for those to the south. The excess in the per cents born in California for single brides over those for mothers was somewhat less for the metropolitan area (8.7 in 1909 and 9.4 in 1908) than for the rural counties north of Tehachapi (9.5 and 10.9), and was likewise less for San Francisco (6.6 and 8.0) than for the other bay counties (11.2 and 10.9).

The small excess in the per cent born in other states among single brides over that among mothers shown for 1909 was limited to San Francisco and the other bay counties and to Los Angeles and the rest of Southern California. However, the slight excess in the per cent born elsewhere in the United States among mothers over that among single brides, found in the average per cents for the whole State in 1908, was the resultant of an excess in the per cents for mothers quite general throughout California and of a contrary excess in the per cents for brides in two populous geographic divisions, San Francisco and Los

Angeles. For both 1909 and 1908 there was an excess in the per cent born in other states among single brides over that among mothers only for Southern California (3.2 and 1.8), particularly Los Angeles (4.6 and 3.4), and for the metropolitan area of Northern and Central California (3.2 and 1.3), especially San Francisco (3.3 and 1.7). For the rural counties north of Tehachapi there was a great excess in the per cents born elsewhere in the United States among mothers over the per cents among single brides (3.0 in 1909 and 3.8 in 1908).

The decided excess in the per cent foreign born among mothers over that among single brides was greatest, generally speaking, in Central California (9.9 and 10.0); next in Southern California (10.1 and 5.8); and least in Northern California (6.5 and 5.6). It is in Central, Southern, and Northern California, in the order stated for the excess of mothers, that the per cents foreign born are likewise greatest among both mothers and brides. For Northern and Central California the per cent born abroad among mothers exceeded that among brides by the same amount, 9.3, each year, 1909 and 1908. In the metropolitan area, where the foreign born element is especially prominent, the excess in the per cent foreign born for mothers over that for single brides was as great as 11.9 in 1909 and 10.7 in 1908, as compared with 6.5 and 7.1 for the rural counties north of Tehachapi. But for San Francisco, where the foreign born population is more massed than in the suburbs, the excess in the per cent born abroad among mothers over that among single brides was only 9.9 in 1909 and 9.7 in 1908, against 12.8 and 10.7, respectively, for the group of other bay counties.

Conclusion.—The comparison of the nativity of white brides and mothers here made gives a rough measure of the relative fecundity of American and foreign born women in California. The figures indicate that in this State, as in the whole country, the foreign born women are more prone to bear children than are the American born, whether natives of California or of other states. For the proportion foreign born is much greater among mothers than among brides, whether the comparison is made for all brides or only the single ones. However, the proportion born elsewhere in the United States than California is slightly less among mothers than among all brides, though about the same for mothers as for single brides alone. The proportion born in the Golden States, moreover, is considerably less among mothers than among either all or only the single brides.

However, these conclusions are only tentative, because the registration of births in California does not yet seem to be quite so complete as the registration of marriages. The deficiency in the registration of births is probably greatest for births in the families of Californians and other Americans, since foreign born families from training abroad appear to realize the importance of promptly registering the births of their children. This deficiency in the registration of the births of children born to American mothers may account in part for the fact that the figures for California in 1909 and 1908 indicate that the fecundity of foreign born women is greater than that of native women. However, the recent data for California agree with the results of earlier statistical investigations in other states, so that it is quite safe to conclude that foreign born women surpass the natives, whether born in California or elsewhere, in the proclivity to bear children.

TABLE 23.—*Births classified by Sex and Race, and*

COUNTY.	Total Births.	Male.	Female.	White.			Negro.	Indian.
				Total.	Male.	Female.		
CALIFORNIA	30,882	16,150	14,732	29,736	15,516	14,220	222	34
Alameda	3,641	1,877	1,764	3,455	1,779	1,676	36	--------
Alpine	4	3	1	4	3	1	--------	--------
Amador	96	51	45	96	51	45	--------	--------
Butte	366	180	186	363	178	185	1	1
Calaveras	126	60	66	126	60	66	--------	--------
Colusa	73	36	37	72	35	37	1	--------
Contra Costa	288	154	134	284	151	133	1	--------
Del Norte	31	17	14	31	17	14	--------	--------
El Dorado	86	41	45	86	41	45	--------	--------
Fresno	1,168	585	583	1,119	555	564	13	--------
Glenn	42	23	19	42	23	19	--------	--------
Humboldt	430	231	199	424	229	195	--------	6
Imperial	97	42	55	96	42	54	--------	--------
Inyo	21	12	9	20	12	8	--------	--------
Kern	243	136	107	226	126	100	3	--------
Kings	243	128	115	231	123	108	5	--------
Lake	93	47	46	91	46	45	--------	2
Lassen	43	26	17	43	26	17	--------	--------
Los Angeles	6,710	3,525	3,185	6,426	3,383	3,043	101	3
Madera	111	60	51	109	59	50	--------	2
Marin	249	132	117	247	130	117	1	--------
Mariposa	22	14	8	22	14	8	--------	--------
Mendocino	173	79	94	173	79	94	--------	--------
Merced	103	59	44	102	58	44	--------	--------
Modoc	67	35	32	67	35	32	--------	--------
Mono	11	3	8	11	3	8	--------	--------
Monterey	264	129	135	247	121	126	--------	--------
Napa	173	95	78	170	94	76	--------	--------
Nevada	211	121	90	206	117	89	--------	--------
Orange	365	192	173	362	191	171	--------	--------
Placer	175	90	85	166	85	81	--------	--------
Plumas	43	21	22	42	21	21	--------	--------
Riverside	504	258	246	483	246	237	10	2
Sacramento	836	476	360	739	413	326	6	2
San Benito	64	33	31	62	32	30	--------	--------
San Bernardino	665	353	312	650	346	304	5	1
San Diego	624	320	304	615	316	299	4	3
San Francisco	6,630	3,449	3,181	6,415	3,329	3,086	19	--------
San Joaquin	577	333	244	555	322	233	2	--------
San Luis Obispo	195	103	92	193	102	91	--------	--------
San Mateo	356	189	167	350	186	164	1	--------
Santa Barbara	315	180	135	300	174	126	2	--------
Santa Clara	1,387	742	645	1,351	718	633	4	--------
Santa Cruz	306	168	138	279	151	128	--------	--------
Shasta	261	139	122	256	135	121	1	4
Sierra	29	14	15	29	14	15	--------	--------
Siskiyou	238	135	103	233	133	100	--------	5
Solano	339	162	177	331	158	173	1	--------
Sonoma	407	209	198	397	203	194	--------	--------
Stanislaus	253	121	132	248	116	132	3	--------
Sutter	91	51	40	89	50	39	--------	1
Tehama	83	45	38	79	42	37	--------	1
Trinity	29	9	20	28	8	20	--------	--------
Tulare	405	194	211	398	190	208	--------	1
Tuolumne	73	29	44	73	29	44	--------	--------
Ventura	238	123	115	230	116	114	1	--------
Yolo	112	66	46	103	61	42	1	--------
Yuba	97	45	52	91	39	52	--------	--------

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*Includes those of unknown nativity, numbering in the entire State only 88 (males *by Sex and Nativity of Mothers, for Counties: 1909.*

Chinese.	Japanese.	White Children With Mothers—								
		Born in California.			Born in Other States.*			Foreign Born.		
		Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.
208	682	10,544	5,463	5,081	10,700	5,578	5,127	8,492	4,480	4,012
44	106	1,440	729	711	965	491	474	1,050	559	491
--------	--------	1	--------	1	3	3	--------	--------	--------	--------
--------	--------	51	26	25	10	7	3	35	18	17
--------	1	191	88	103	139	77	62	33	13	20
--------	--------	84	42	42	21	12	9	21	6	15
--------	--------	54	28	26	14	5	9	4	2	2
--------	8	106	57	49	53	27	26	125	67	58
--------	--------	9	5	4	20	11	9	2	1	1
--------	--------	58	27	31	16	9	7	12	5	7
4	32	251	121	130	520	264	256	348	170	178
--------	--------	19	11	8	22	11	11	1	1	--------
--------	--------	199	106	93	84	52	32	141	71	70
--------	1	12	6	6	75	32	43	9	4	5
1	--------	11	7	4	8	4	4	1	1	--------
6	8	74	44	30	105	54	51	47	28	19
5	2	91	48	43	112	61	51	28	14	14
--------	--------	66	32	34	17	9	8	8	5	3
--------	--------	30	21	9	10	4	6	3	1	2
16	164	960	514	446	3,740	1,935	1,805	1,726	934	792
--------	--------	38	23	15	40	18	22	31	18	13
--------	1	105	52	53	43	26	17	99	52	47
--------	--------	17	9	8	4	4	--------	1	1	--------
--------	--------	101	42	59	30	16	14	42	21	21
--------	1	45	21	24	23	17	6	34	20	14
--------	--------	33	16	17	28	16	12	6	3	3
--------	--------	4	--------	4	5	3	2	2	--------	2
8	14	125	62	63	59	29	30	63	30	33
2	1	87	42	45	46	26	20	37	26	11
8	2	120	71	49	44	19	25	42	27	15
--------	3	89	44	45	227	122	105	46	25	21
--------	9	86	41	45	49	25	24	31	19	12
1	--------	32	16	16	7	4	3	3	1	2
--------	9	90	48	42	296	149	147	97	49	48
8	81	379	203	176	196	113	83	164	97	67
--------	2	37	22	15	11	5	6	14	5	9
--------	9	121	68	53	384	208	176	145	70	75
1	1	103	37	66	376	207	169	136	72	64
39	107	2,675	1,409	1,266	1,069	538	531	2,671	1,382	1,289
2	18	279	157	122	173	108	65	103	57	46
--------	2	94	45	49	61	38	23	38	19	19
2	8	139	72	67	65	37	28	146	77	69
4	9	128	76	52	109	68	41	63	30	33
8	24	529	276	253	412	211	201	410	231	179
1	26	141	75	66	82	48	34	56	28	28
--------	--------	146	81	65	79	39	40	31	15	16
--------	--------	23	11	12	5	3	2	1	--------	1
--------	--------	111	66	45	77	43	34	45	24	21
1	6	174	76	98	76	38	38	81	44	37
--------	10	188	95	93	127	65	62	82	43	39
--------	2	96	48	48	97	42	55	55	26	29
--------	1	56	31	25	23	18	10	10	6	4
1	2	41	21	20	29	14	15	9	7	2
1	--------	23	7	16	3	--------	3	2	1	1
--------	6	125	61	64	234	108	126	39	21	18
--------	--------	47	22	25	17	6	11	9	1	8
2	5	82	40	42	109	51	58	39	25	14
--------	8	70	41	29	24	15	9	9	5	4
8	3	58	24	34	27	13	14	6	2	4

43, females 45).

TABLE 24.—*Births classified by Sex and Race, and*

COUNTY.	Total Births.	Male.	Female.	White.			Negro.	Indian.
				Total.*	Male.	Female.		
CALIFORNIA	28,077	14,516	13,561	27,190	14,044	13,146	186	19
Alameda	3,323	1,734	1,589	3,151	1,651	1,500	27	-------
Alpine	7	2	5	7	2	5	-------	-------
Amador	45	23	22	45	23	22	-------	-------
Butte	261	137	124	254	132	122	3	1
Calaveras	115	58	57	115	58	57	-------	-------
Colusa	79	43	36	79	43	36	-------	-------
Contra Costa	292	150	142	288	147	141	-------	-------
Del Norte	28	16	12	28	16	12	-------	-------
El Dorado	98	48	50	98	48	50	-------	-------
Fresno	989	486	503	964	474	490	6	-------
Glenn	41	20	21	41	20	21	-------	-------
Humboldt	397	197	200	395	197	198	1	1
Imperial	60	32	28	60	32	28	-------	-------
Inyo	28	19	9	28	19	9	-------	-------
Kern	190	106	84	175	97	78	2	-------
Kings	209	116	93	201	111	90	3	-------
Lake	80	38	42	79	38	41	-------	1
Lassen	35	18	17	35	18	17	-------	-------
Los Angeles	6,404	3,398	3,006	6,182	3,283	2,899	87	4
Madera	106	60	46	102	58	44	1	2
Marin	302	154	148	300	154	146	1	-------
Mariposa	20	7	13	18	6	12	-------	1
Mendocino	142	70	72	141	70	71	-------	1
Merced	44	29	15	44	29	15	-------	-------
Modoc	49	17	32	49	17	32	-------	-------
Mono	8	5	3	8	5	3	-------	-------
Monterey	266	148	118	242	136	106	1	-------
Napa	151	69	82	148	68	80	-------	-------
Nevada	206	98	108	205	98	107	-------	-------
Orange	395	198	197	383	192	191	5	-------
Placer	115	62	53	111	59	52	-------	-------
Plumas	46	28	18	44	26	18	-------	-------
Riverside	443	225	218	423	216	207	7	2
Sacramento	713	362	351	662	324	338	7	-------
San Benito	61	33	28	61	33	28	-------	-------
San Bernardino	638	344	294	631	339	292	4	-------
San Diego	628	326	302	616	319	297	3	1
San Francisco	6,058	3,067	2,991	5,856	2,961	2,895	13	-------
San Joaquin	496	250	246	484	242	242	-------	-------
San Luis Obispo	203	115	88	201	113	88	1	-------
San Mateo	345	175	170	343	174	169	-------	-------
Santa Barbara	323	157	166	318	154	164	-------	-------
Santa Clara	1,202	630	572	1,184	618	566	2	-------
Santa Cruz	331	147	184	319	142	177	-------	-------
Shasta	202	106	96	198	103	95	-------	3
Sierra	37	24	13	37	24	13	-------	-------
Siskiyou	261	134	127	256	131	125	-------	2
Solano	332	165	167	326	163	163	1	-------
Sonoma	333	178	155	331	177	154	-------	-------
Stanislaus	144	73	71	143	72	71	1	-------
Sutter	63	30	33	63	30	33	-------	-------
Tehama	78	41	37	75	39	36	-------	-------
Trinity	20	12	8	20	12	8	-------	-------
Tulare	357	192	165	353	191	162	-------	-------
Tuolumne	32	17	15	32	17	15	-------	-------
Ventura	137	71	66	134	70	64	1	-------
Yolo	35	13	22	34	12	22	-------	-------
Yuba	74	43	31	70	41	29	4	-------

*Includes those of unknown nativity, numbering in the entire State only 146 *by Sex and Nativity of Mothers, for Counties: 1908.*

Chinese.	Japanese.	White Children With Mothers—								
		Born in California.			Born in Other States.*			Foreign Born.		
		Total	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.
227	455	9,469	4,816	4,653	10,099	5,314	4,785	7,622	3,908	3,714
54	91	1,288	680	608	927	476	451	936	495	441
--------	--------	5	2	3	2	--------	2	--------	--------	--------
--------	--------	22	11	11	5	3	2	18	9	9
--------	3	131	61	70	99	59	40	24	12	12
--------	--------	68	31	37	19	11	8	28	16	12
--------	--------	57	33	24	17	7	10	5	3	2
--------	4	118	49	69	81	49	32	89	49	40
--------	--------	9	6	3	16	8	8	3	2	1
--------	--------	63	35	28	20	9	11	15	4	11
6	13	221	115	106	418	190	228	330	169	161
--------	--------	22	11	11	16	8	8	3	1	2
--------	--------	183	93	90	104	51	53	108	55	53
--------	--------	7	3	4	50	27	23	3	2	1
--------	--------	17	11	6	7	5	2	4	3	1
9	4	62	35	27	72	40	32	41	22	19
2	3	61	27	34	114	66	48	26	18	8
--------	--------	53	27	26	22	9	13	4	2	2
--------	--------	25	13	12	8	5	3	2	--------	2
17	114	1,031	532	499	3,667	1,987	1,680	1,484	764	720
--------	1	48	26	22	38	21	17	16	11	5
--------	1	132	66	66	61	35	26	107	53	54
1	--------	15	4	11	2	1	1	1	1	--------
--------	--------	74	38	36	25	14	11	42	18	24
--------	--------	23	18	5	7	5	2	14	6	8
--------	--------	28	4	24	18	12	6	3	1	2
--------	--------	3	2	1	5	3	2	--------	--------	--------
6	17	129	72	57	48	24	24	65	40	25
1	2	67	38	29	37	15	22	44	15	29
1	--------	113	52	61	53	22	31	39	24	15
--------	7	91	45	46	247	122	125	45	25	20
--------	4	58	25	33	42	26	16	11	8	3
1	1	26	14	12	11	7	4	7	5	2
--------	11	86	45	41	273	135	138	64	36	28
12	32	337	171	166	175	78	97	150	75	75
--------	--------	45	22	23	9	6	3	7	5	2
--------	3	109	53	56	390	213	177	132	67	65
--------	3	131	69	62	365	193	172	120	57	63
98	91	2,323	1,155	1,168	1,083	566	517	2,450	1,240	1,210
4	8	230	112	118	151	81	70	103	49	54
1	--------	108	55	53	52	27	25	41	31	10
--------	2	101	45	56	62	40	22	180	89	91
1	4	148	77	71	104	45	59	66	32	34
4	12	479	252	227	320	164	156	385	202	183
1	11	161	76	85	110	49	61	48	17	31
1	--------	101	53	48	68	34	34	29	16	13
--------	--------	26	18	8	8	4	4	3	2	1
3	--------	119	65	54	95	47	48	42	19	23
1	4	168	75	93	79	46	33	79	42	37
1	1	146	79	67	105	60	45	80	38	42
--------	--------	61	35	26	41	21	20	41	16	25
--------	--------	39	17	22	17	10	7	7	3	4
2	1	36	20	16	29	16	13	10	3	7
--------	--------	15	8	7	8	8	--------	2	1	1
--------	4	111	69	42	208	100	108	39	22	17
--------	--------	22	8	14	5	5	--------	5	4	1
--------	2	55	24	31	65	38	27	14	8	6
--------	1	19	7	12	11	4	7	4	1	3
--------	--------	43	27	16	23	14	9	4	--------	4

(males 75, females 71).

TABLE 25.—*Births classified by Sex and*

CITY.	Total Births.	Male.	Female.	White.			Negro.	Indian.
				Total.	Male.	Female.		
26 FREEHOLDERS' CHARTER CITIES	18,906	9,867	9,039	18,163	9,470	8,693	171	5
Alameda County*	537	265	272	522	257	265	6	------
Alameda city	411	218	193	379	199	180	2	------
Berkeley city	669	350	319	636	336	300	4	------
Oakland city	2,024	1,044	980	1,918	987	931	24	------
Contra Costa County*	252	134	118	248	131	117	1	------
Richmond city	36	20	16	36	20	16	------	------
Fresno County*	747	379	368	709	355	354	10	------
Fresno city	421	206	215	410	200	210	3	------
Humboldt County*	185	104	81	181	103	78	------	4
Eureka city	245	127	118	243	126	117	------	2
Los Angeles County*	1,447	761	686	1,385	723	662	4	------
Long Beach city	223	137	86	220	136	84	1	------
Los Angeles city	4,548	2,376	2,172	4,345	2,279	2,066	83	2
Pasadena city	409	214	195	395	209	186	11	1
Santa Monica city	83	37	46	81	36	45	2	------
Monterey County*	211	107	104	195	99	96	------	------
Salinas city	53	22	31	52	22	30	------	------
Napa County*	70	42	28	68	41	27	------	------
Napa city	103	53	50	102	53	49	------	------
Nevada County*	141	83	58	136	79	57	------	------
Grass Valley city	70	38	32	70	38	32	------	------
Riverside County*	254	131	123	248	128	120	2	2
Riverside city	250	127	123	235	118	117	8	------
Sacramento County*	307	178	129	259	151	108	3	2
Sacramento city	529	298	231	480	262	218	3	------
San Bernardino County*	458	250	208	449	246	203	4	1
San Bernardino city	207	103	104	201	100	101	1	------
San Diego County*	157	72	85	153	70	83	1	3
San Diego city	467	248	219	462	246	216	3	------
San Francisco: (City and County)	6,630	3,449	3,181	6,415	3,329	3,086	19	------
San Joaquin County*	296	178	118	277	169	108	1	------
Stockton city	281	155	126	278	153	125	1	------
Santa Barbara County*	157	89	68	144	84	60	1	------
Santa Barbara city	158	91	67	156	90	66	1	------
Santa Clara County*	866	478	388	842	461	381	------	------
Palo Alto city	62	33	29	62	33	29	------	------
San Jose city	459	231	228	447	224	223	4	------
Santa Cruz County*	60	33	27	56	30	26	------	------
Santa Cruz city	135	75	60	135	75	60	------	------
Watsonville city	111	60	51	88	46	42	------	------
Solano County*	153	71	82	148	68	80	------	------
Vallejo city	186	91	95	183	90	93	1	------
Sonoma County*	271	145	126	263	140	123	------	------
Santa Rosa city	136	64	72	134	63	71	------	------

*Figures are for county exclusive of freeholders' charter city or cities.

†Includes those of unknown nativity, numbering in the twenty-six freeholders'

Race, and by Sex and Nativity of Mothers, for Cities: 1909.

Chinese.	Japanese.	White Children With Mothers—								
		Born in California.			Born in Other States.			Foreign Born.		
		Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.
161	406	6,063	3,163	2,900	6,196	3,224	2,972	5,904	3,063	[illegible]
4	5	232	118	114	130	65	65	160	74	86
---------	30	175	89	86	98	53	45	106	57	49
2	27	265	133	132	226	121	105	145	82	63
33	44	768	389	379	511	252	259	639	346	293
---------	3	90	48	42	51	27	24	107	56	51
---------	---------	16	9	7	2	---------	2	18	11	7
1	27	135	66	69	354	173	181	220	116	104
3	5	116	55	61	166	91	75	128	54	74
---------	---------	93	54	39	38	24	14	50	25	25
---------	---------	106	52	54	46	28	18	91	46	45
1	57	236	125	111	811	411	400	338	187	151
---------	2	32	18	14	163	100	63	25	18	7
15	108	643	343	300	2,423	1,254	1,169	1,279	682	597
---------	2	28	17	11	294	149	145	78	48	30
---------	---------	21	11	10	49	21	28	11	4	7
3	13	96	50	46	50	26	24	49	23	26
---------	1	29	12	17	9	3	6	14	7	7
1	1	26	13	13	23	15	8	19	13	6
1	---------	61	29	32	23	11	12	18	13	5
3	2	74	45	29	30	13	17	32	21	11
---------	---------	46	26	20	14	6	8	10	6	4
---------	2	50	23	27	154	78	76	44	27	17
---------	7	40	25	15	142	71	71	53	22	31
3	40	126	69	57	63	39	24	70	43	27
5	41	253	134	119	133	74	59	94	54	40
---------	4	73	42	31	271	147	124	105	57	48
---------	5	48	26	22	113	61	52	40	13	27
---------	---------	28	7	21	92	44	48	33	19	14
1	1	75	30	45	284	163	121	103	53	50
89	107	2,675	1,409	1,266	1,069	538	531	2,671	1,382	1,289
2	16	126	72	54	99	66	33	52	31	21
---------	2	153	85	68	74	42	32	51	26	25
4	3	73	42	31	44	28	16	27	14	13
---------	1	55	34	21	65	40	25	36	16	20
3	21	330	168	162	281	150	131	231	143	88
---------	---------	25	13	12	36	18	18	11	7	4
5	3	174	95	79	105	48	57	168	81	87
---------	4	32	16	16	20	12	8	4	2	2
---------	---------	61	36	25	44	27	17	30	12	18
1	22	48	23	25	18	9	9	22	14	8
---------	5	80	32	48	31	15	16	37	21	16
1	1	94	44	50	45	23	22	44	23	21
---------	3	132	69	63	73	39	34	58	32	26
---------	2	56	26	30	54	26	28	24	11	13

charter cities only 48 (males 25, females 23).

TABLE 26.—*Births classified by Sex and*

CITY.	Total Births.	Male.	Female	White.			Negro.	Indian.
				Total.	Male.	Female.		
24 FREEHOLDERS' CHARTER CITIES	17,586	9,089	8,497	16,949	8,767	8,182	143	5
Alameda County*	517	267	250	501	256	245	5	----------
Alameda city	413	232	181	385	218	167	2	----------
Berkeley city	567	301	266	537	282	255	4	----------
Oakland city	1,826	934	892	1,728	895	833	16	----------
Fresno County*	570	281	289	558	275	283	4	----------
Fresno city	419	205	214	406	199	207	2	----------
Humboldt County*	152	68	84	151	68	83	1	----------
Eureka city	245	129	116	244	129	115	----------	1
Los Angeles County*	1,288	679	609	1,253	659	594	2	----------
Long Beach city	188	114	74	183	112	71	2	----------
Los Angeles city	4,399	2,327	2,072	4,236	2,241	1,995	70	4
Pasadena city	436	234	202	423	230	193	8	----------
Santa Monica city	93	44	49	87	41	46	5	----------
Monterey County*	191	106	85	168	94	74	1	----------
Salinas city	75	42	33	74	42	32	----------	----------
Napa County*	75	29	46	73	28	45	----------	----------
Napa city	76	40	36	75	40	35	----------	----------
Nevada County*	148	70	78	147	70	77	----------	----------
Grass Valley city	58	28	30	58	28	30	----------	----------
Riverside County*	218	109	109	214	108	106	----------	2
Riverside city	225	116	109	209	108	101	7	----------
Sacramento County*	190	96	94	166	76	90	1	----------
Sacramento city	523	266	257	496	248	248	6	----------
San Bernardino County*	419	232	187	413	228	185	4	----------
San Bernardino city	219	112	107	218	111	107	----------	----------
San Diego County*	205	101	104	203	100	103	1	1
San Diego city	423	225	198	413	219	194	7	----------
San Francisco: (City and County)	6,058	3,067	2,991	5,856	2,961	2,895	13	----------
San Joaquin County*	234	119	115	225	114	111	----------	----------
Stockton city	262	131	131	259	128	131	----------	----------
Santa Barbara County*	182	89	93	179	87	92	----------	----------
Santa Barbara city	141	68	73	139	67	72	----------	----------
Santa Clara County*	835	431	404	823	421	402	1	----------
San Jose city	367	199	168	361	197	164	1	----------
Santa Cruz County*	72	35	37	68	33	35	----------	----------
Santa Cruz city	168	75	93	166	75	91	----------	----------
Watsonville city	91	37	54	85	34	51	----------	----------
Solano County*	149	74	75	145	73	72	1	----------
Vallejo city	183	91	92	181	90	91	----------	----------
Sonoma County*	202	106	96	201	105	96	----------	----------
Santa Rosa city	131	72	59	130	72	58	----------	----------

*Figures are for county exclusive of freeholders' charter city or cities.
†Includes those of unknown nativity, numbering in the twenty-four freeholders'

Race, and by Sex and Nativity of Mothers, for Cities: 1908.

Chinese.	Japanese.	White Children With Mothers—								
		Born in California.			Born in Other States.†			Foreign Born.		
		Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.
185	304	5,500	2,807	2,693	6,131	3,244	2,887	5,318	2,710	2,608
1	10	206	98	108	134	64	70	161	94	67
1	25	163	92	71	117	71	46	104	55	49
3	23	244	132	112	169	82	87	124	68	56
49	33	675	358	317	506	259	247	547	278	269
1	7	119	64	55	230	106	124	209	105	104
5	6	102	51	51	183	84	99	121	64	57
--------	--------	89	42	47	33	14	19	29	12	17
--------	--------	94	51	43	71	35	36	79	43	36
--------	33	265	145	120	746	397	349	242	117	125
--------	3	27	17	10	138	85	58	18	10	8
17	72	691	347	344	2,421	1,321	1,100	1,124	573	551
--------	5	30	16	14	312	159	153	81	55	26
--------	1	18	7	11	50	25	25	19	9	10
6	16	80	45	35	38	20	18	50	29	21
--------	1	49	27	22	10	4	6	15	11	4
1	1	27	14	13	18	5	13	28	9	19
--------	1	40	24	16	19	10	9	16	6	10
1	--------	77	37	40	38	18	25	32	20	12
--------	--------	36	15	21	15	9	6	7	4	3
--------	2	54	27	27	130	62	68	30	19	11
--------	9	32	18	14	143	73	70	34	17	17
7	16	78	33	45	47	21	26	41	22	19
5	16	259	138	121	128	57	71	109	53	56
--------	2	63	33	30	274	148	126	76	47	29
--------	1	46	20	26	116	65	51	56	20	36
--------	--------	62	33	29	109	50	59	32	17	15
--------	3	69	36	33	256	143	113	88	40	48
98	91	2,323	1,155	1,168	1,083	566	517	2,450	1,240	1,210
2	7	92	46	46	90	51	39	43	17	26
2	1	138	66	72	61	30	31	60	32	28
1	2	98	50	48	46	20	26	35	17	18
--------	2	50	27	23	58	25	33	31	15	16
2	9	339	172	167	236	119	117	248	130	118
2	3	140	80	60	84	45	39	137	72	65
--------	4	33	15	18	22	13	9	13	5	8
--------	2	75	41	34	69	27	42	22	7	15
1	5	53	20	33	19	9	10	13	5	8
--------	8	78	37	41	28	15	13	39	21	18
1	1	90	38	52	51	31	20	40	21	19
--------	1	90	48	42	54	31	23	57	26	31
1	--------	56	31	25	51	29	22	23	12	11

charter cities only 91 (males 49, females 42).

TABLE 27.—*Births classified by Sex, Race, and Nativity of Mothers, with Per Cents by Sex, for Geographic Divisions: 1909 and 1908.*

GEOGRAPHIC DIVISION AND RACE OR NATIVITY OF MOTHER.	Births.						Per Cent Male.		Per Cent Female.	
	Total.		Male.		Female.					
	1909.	1908.	1909.	1908.	1909.	1908.	1909.	1908.	1909.	1908.
THE STATE	30,882	28,077	16,150	14,516	14,732	13,561	52.3	51.7	47.7	48.3
White	29,736	27,190	15,516	14,044	14,220	13,146	52.2	51.7	47.8	48.3
Born in California	10,544	9,469	5,463	4,816	5,081	4,653	51.8	50.9	48.2	49.1
Born in other states*	10,700	10,099	5,573	5,314	5,127	4,785	52.1	52.6	47.9	47.4
Foreign born	8,492	7,622	4,480	3,908	4,012	3,714	52.8	51.3	47.2	48.7
Non-Caucasian	1,146	887	634	472	512	415	55.3	53.2	44.7	46.8
Northern California	3,155	2,698	1,648	1,381	1,507	1,317	52.2	51.2	47.8	48.8
White	3,092	2,659	1,609	1,359	1,483	1,300	52.0	51.1	48.0	48.9
Born in California	1,673	1,371	855	702	818	669	51.1	51.2	48.9	48.8
Born in other states*	880	816	465	429	415	387	52.8	52.6	47.2	47.4
Foreign born	539	472	289	228	250	244	53.6	48.3	46.4	51.7
Non-Caucasian	63	39	39	22	24	17	61.9	56.4	38.1	43.6
Coast counties	1,336	1,151	687	580	649	571	51.4	50.4	48.6	49.6
White	1,314	1,142	676	578	638	564	51.4	50.6	48.6	49.4
Born in California	673	547	329	289	344	258	48.9	52.8	51.1	47.2
Born in other states*	327	312	179	158	148	154	54.7	50.6	45.3	49.4
Foreign born	314	283	168	131	146	152	53.5	46.3	46.5	53.7
Non-Caucasian	22	9	11	2	11	7	50.0	22.2	50.0	77.8
Interior counties	1,819	1,547	961	801	858	746	52.8	51.8	47.2	48.2
White	1,778	1,517	933	781	845	736	52.5	51.5	47.5	48.5
Born in California	1,000	824	526	413	474	411	52.6	50.1	47.4	49.9
Born in other states*	553	504	286	271	267	233	51.7	53.8	48.3	46.2
Foreign born	225	189	121	97	104	92	53.8	51.3	46.2	48.7
Non-Caucasian	41	30	28	20	13	10	68.3	66.7	31.7	33.3
Central California	18,209	16,351	9,509	8,384	8,700	7,967	52.2	51.3	47.8	48.7
White	17,482	15,784	9,093	8,080	8,389	7,704	52.0	51.2	48.0	48.8
Born in California	7,286	6,440	3,775	3,266	3,511	3,174	51.8	50.7	48.2	49.3
Born in other states*	4,504	4,122	2,336	2,125	2,168	1,997	51.9	51.6	48.1	48.4
Foreign born	5,692	5,222	2,982	2,689	2,710	2,533	52.4	51.5	47.6	48.5
Non-Caucasian	727	567	416	304	311	263	57.2	53.6	42.8	46.4
San Francisco	6,630	6,058	3,449	3,067	3,181	2,991	52.0	50.6	48.0	49.4
White	6,415	5,856	3,329	2,961	3,086	2,895	51.9	50.6	48.1	49.4
Born in California	2,675	2,323	1,409	1,155	1,266	1,168	52.7	49.7	47.3	50.3
Born in other states*	1,069	1,083	538	566	531	517	50.3	52.3	49.7	47.7
Foreign born	2,671	2,450	1,382	1,240	1,289	1,210	51.7	50.6	48.3	49.4
Non-Caucasian	215	202	120	106	95	96	55.8	52.5	44.2	47.5
Other bay counties	4,534	4,262	2,352	2,213	2,182	2,049	51.9	51.9	48.1	48.1
White	4,336	4,082	2,246	2,126	2,090	1,956	51.8	52.1	48.2	47.9
Born in California	1,790	1,639	910	840	880	799	50.8	51.3	49.2	48.7
Born in other states*	1,126	1,131	581	600	545	531	51.6	53.1	48.4	46.9
Foreign born	1,420	1,312	755	686	665	626	53.2	52.3	46.8	47.7
Non-Caucasian	198	180	106	87	92	93	53.5	48.3	46.5	51.7
Coast counties	2,216	2,063	1,175	1,073	1,041	990	53.0	52.0	47.0	48.0
White	2,132	2,007	1,124	1,042	1,008	965	52.7	51.9	47.3	48.1
Born in California	926	922	480	477	446	445	51.8	51.7	48.2	48.3
Born in other states*	625	539	331	270	294	269	53.0	50.1	47.0	49.9
Foreign born	581	546	313	295	268	251	53.9	54.0	46.1	46.0
Non-Caucasian	84	56	51	31	33	25	60.7	55.4	39.3	44.6
Interior counties	4,829	3,968	2,533	2,031	2,296	1,937	52.5	51.2	47.5	48.8
White	4,599	3,839	2,394	1,951	2,205	1,888	52.1	50.8	47.9	49.2
Born in California	1,895	1,556	976	794	919	762	51.5	51.0	48.5	49.0
Born in other states*	1,684	1,369	886	689	798	680	52.6	50.3	47.4	49.7
Foreign born	1,020	914	532	468	488	446	52.2	51.2	47.8	48.8
Non-Caucasian	230	129	139	80	91	49	60.4	62.0	39.6	38.0
Southern California	9,518	9,028	4,993	4,751	4,525	4,277	52.5	52.6	47.5	47.4
White	9,162	8,747	4,814	4,605	4,348	4,142	52.5	52.6	47.5	47.4
Born in California	1,585	1,658	833	848	752	810	52.6	51.1	47.4	48.9
Born in other states*	5,316	5,161	2,772	2,760	2,544	2,401	52.1	53.5	47.9	46.5
Foreign born	2,261	1,928	1,209	991	1,052	937	53.5	51.4	46.5	48.6
Non-Caucasian	356	281	179	146	177	135	50.3	52.0	49.7	48.0
Los Angeles	6,710	6,404	3,525	3,398	3,185	3,006	52.5	53.1	47.5	46.9
White	6,426	6,182	3,383	3,283	3,043	2,899	52.6	53.1	47.4	46.9
Born in California	960	1,031	514	532	446	499	53.5	51.6	46.5	48.4
Born in other states*	3,740	3,667	1,935	1,987	1,805	1,680	51.7	54.2	48.3	45.8
Foreign born	1,726	1,484	934	764	792	720	54.1	51.5	45.9	48.5
Non-Caucasian	284	222	142	115	142	107	50.0	51.8	50.0	48.2

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*Includes those of unknown nativity, numbering in the entire State in 1909 only 88 (males 43, females 45), and in 1908 only 146 (males 75, females 71).

TABLE 27.—*Births classified by Sex, Race, and Nativity of Mothers, with Per Cents by Sex, for Geographic Divisions: 1909 and 1908—Continued.*

GEOGRAPHIC DIVISION AND RACE OR NATIVITY OF MOTHER.	Births.						Per Cent Male.		Per Cent Female.	
	Total.		Male.		Female.					
	1909.	1908.	1909.	1908.	1909.	1908.	1909.	1908.	1909.	1908.
Other counties	2,808	2,624	1,468	1,353	1,340	1,271	52.3	51.6	47.7	48.4
White	2,736	2,565	1,431	1,322	1,305	1,243	52.3	51.5	47.7	48.5
Born in California	625	627	319	316	306	311	51.0	50.4	49.0	49.6
Born in other states*	1,576	1,494	837	773	739	721	53.1	51.7	46.9	48.3
Foreign born	535	444	275	227	260	217	51.4	51.1	48.6	48.9
Non-Caucasian	72	59	37	31	35	28	51.4	52.5	48.6	47.5
Northern and Central California	21,364	19,049	11,157	9,765	10,207	9,284	52.2	51.3	47.8	48.7
White	20,574	18,443	10,702	9,439	9,872	9,004	52.0	51.2	48.0	48.8
Born in California	8,959	7,811	4,630	3,963	4,329	3,848	51.7	50.8	48.3	49.2
Born in other states*	5,384	4,938	2,801	2,554	2,583	2,384	52.0	51.7	48.0	48.3
Foreign born	6,231	5,694	3,271	2,917	2,960	2,777	52.5	51.2	47.5	48.8
Non-Caucasian	790	606	455	326	335	280	57.6	53.8	42.4	46.2
Coast counties	14,716	13,534	7,663	6,933	7,053	6,601	52.1	51.2	47.9	48.8
White	14,197	13,087	7,375	6,707	6,822	6,380	51.9	51.2	48.1	48.8
Born in California	6,064	5,431	3,128	2,761	2,936	2,670	51.6	50.8	48.4	49.2
Born in other states*	3,147	3,065	1,629	1,594	1,518	1,471	51.8	52.0	48.2	48.0
Foreign born	4,986	4,591	2,618	2,352	2,368	2,239	52.5	51.2	47.5	48.8
Non-Caucasian	519	447	288	226	231	221	55.5	50.6	44.5	49.4
Interior counties	6,648	5,515	3,494	2,832	3,154	2,683	52.6	51.4	47.4	48.6
White	6,377	5,356	3,327	2,732	3,050	2,624	52.2	51.0	47.8	49.0
Born in California	2,895	2,380	1,502	1,207	1,393	1,173	51.9	50.7	48.1	49.3
Born in other states*	2,237	1,873	1,172	960	1,065	913	52.4	51.3	47.6	48.7
Foreign born	1,245	1,103	653	565	592	538	52.4	51.2	47.6	48.8
Non-Caucasian	271	159	167	100	104	59	61.6	62.9	38.4	37.1
Metropolitan area	11,164	10,320	5,801	5,280	5,363	5,040	52.0	51.2	48.0	48.8
White	10,751	9,938	5,575	5,087	5,176	4,851	51.9	51.2	48.1	48.8
Born in California	4,465	3,962	2,319	1,995	2,146	1,967	51.9	50.4	48.1	49.6
Born in other states*	2,195	2,214	1,119	1,166	1,076	1,048	51.0	52.7	49.0	47.3
Foreign born	4,091	3,762	2,137	1,926	1,954	1,836	52.2	51.2	47.8	48.8
Non-Caucasian	413	382	226	193	187	189	54.7	50.5	45.3	49.5
Rural counties	10,200	8,729	5,356	4,485	4,844	4,244	52.5	51.4	47.5	48.6
White	9,823	8,505	5,127	4,352	4,696	4,153	52.2	51.2	47.8	48.8
Born in California	4,494	3,849	2,311	1,973	2,183	1,876	51.4	51.3	48.6	48.7
Born in other states*	3,189	2,724	1,682	1,388	1,507	1,336	52.7	51.0	47.3	49.0
Foreign born	2,140	1,932	1,134	991	1,006	941	53.0	51.3	47.0	48.7
Non-Caucasian	377	224	229	133	148	91	60.7	59.4	39.3	40.6

TABLE 28.—*Births classified by Sex, Race, and Nativity of Mothers, with Per Cents by Sex, for Cities and Rest of State: 1909 and 1908.*

POPULATION GROUP AND RACE OR NATIVITY OF MOTHER.	Births.						Per Cent Male.		Per Cent Female.	
	Total.		Male		Female.					
	1909	1908.	1909.	1908.	1909.	1908	1909.	1908.	1909.	1908.
CALIFORNIA	30,882	28,077	16,150	14,516	14,732	13,561	52.3	51.7	47.7	48.3
White	29,736	27,190	15,516	14,044	14,220	13,146	52.2	51.7	47.8	48.3
Born in California	10,544	9,469	5,463	4,816	5,081	4,653	51.8	50.9	48.2	49.1
Born in other states*	10,700	10,099	5,573	5,314	5,127	4,785	52.1	52.6	47.9	47.4
Foreign born	8,492	7,622	4,480	3,908	4,012	3,714	52.8	51.3	47.2	48.7
Non-Caucasian	1,146	887	634	472	512	415	55.3	53.2	44.7	46.8
Freeholders' charter cities	18,906	17,586	9,867	9,089	9,039	8,497	52.2	51.7	47.8	48.3
White	18,163	16,949	9,470	8,767	8,693	8,182	52.1	51.7	47.9	48.3
Born in California	6,063	5,500	3,163	2,807	2,900	2,693	52.2	51.0	47.8	49.0
Born in other states*	6,196	6,131	3,224	3,244	2,972	2,887	52.0	52.9	48.0	47.1
Foreign born	5,904	5,318	3,083	2,710	2,821	2,608	52.2	51.0	47.8	49.0
Non-Caucasian	743	637	397	322	346	315	53.4	50.5	46.6	49.5
Rest of State	11,976	10,491	6,283	5,247	5,693	5,064	52.5	51.7	47.5	48.3
White	11,573	10,241	6,046	5,227	5,527	4,964	52.2	51.5	47.8	48.5
Born in California	4,481	3,969	2,300	2,009	2,181	1,960	51.3	50.6	48.7	49.4
Born in other states*	4,504	3,968	2,349	2,070	2,155	1,898	52.2	52.2	47.8	47.8
Foreign born	2,588	2,304	1,397	1,198	1,191	1,106	54.0	52.0	46.0	48.0
Non-Caucasian	403	250	237	150	166	100	58.8	60.0	41.2	40.0

*Includes those of unknown nativity, numbering in the entire State in 1909 only 88 (males 43, females 45), and in 1908 only 146 (males 75, females 71).

STATISTICS OF DEATHS: 1909 AND 1908.

SUMMARY.

Death Totals and Decrease.—The deaths in California, exclusive of stillbirths, numbered 29,303 in 1906, 31,095 in 1907, 31,287 in 1908, and 30,985 in 1909.

While deaths increased by 1,792, or 6.1 per cent, in 1906 to 1907 and by 192, or 0.6 per cent, in 1907 to 1908, they decreased by 302, or 1.0 per cent, in 1908 to 1909, the total for 1909 being less by 110 than that for 1907.

The death total for the counties north of Tehachapi was 21,545 in 1909 against 22,293 in 1908, a decrease of 748, or 3.4 per cent. The total for the counties south of Tehachapi, on the other hand, was 9,440 in 1909 as compared with 8,994 in 1908, an increase of 446, or 5.0 per cent.

In 1908 to 1909 only twenty-one counties showed increases in deaths, while thirty-seven showed decreases.

Deaths decreased by at least one tenth, 10.0 per cent, in the following nineteen counties: Alpine, Imperial, Sierra, Glenn, Modoc, Trinity, Sutter, Plumas, Del Norte, San Benito, Fresno, Contra Costa, Inyo, Merced, Yuba, San Diego, Nevada, San Mateo, and Kings.

The decrease in deaths was slightly less for freeholders' charter cities (0.8 per cent) than for all the rest of the State (1.1 per cent).

As many as sixteen chartered cities reported fewer deaths in 1909 than in 1908, the decreases being over 5.0 per cent for the following cities: Grass Valley, Fresno, San Diego, Eureka, Napa, Sacramento, Santa Monica, and Stockton.

Death-Rates.—For an estimated midyear population of 2,306,001 in 1909, the 30,985 deaths give a rate of 13.4, and for an estimated midyear population of 2,215,615 in 1908, the 31,287 deaths give a rate of 14.1 per 1,000 population.

The death-rates are somewhat higher for the counties north of Tehachapi than for those to the south. The rates are also higher for the metropolitan area than for the rural counties north of Tehachapi, for San Francisco than for its suburbs, and for Los Angeles than for the rest of Southern California.

The individual counties with death-rates above the State averages each year were: Napa, San Joaquin, Sacramento, San Bernardino, Shasta, Butte, El Dorado, Plumas, Nevada, Yuba, San Francisco, Santa Clara, and Alameda.

The death-rate is somewhat higher within chartered cities, 14.1 in 1909 and 14.9 in 1908, than outside them, 12.7 and 13.3, respectively.

The death-rates were above the city averages each year in San Bernardino, Stockton, Santa Barbara, Santa Cruz, Sacramento, San Diego, Eureka, Vallejo, and San Francisco.

On the other hand there were notably low death-rates both years in Berkeley, Oakland, Napa, Los Angeles, San Jose, and Santa Rosa.

Causes of Death.—Tuberculosis is the leading single cause of death in California, causing over one seventh of all deaths (15.1 per cent in 1909 and 14.6 per cent in 1908.) The tuberculosis death-rate per 100,000 population was 202.6 in 1909 and 206.1 in 1908.

For diseases of the circulatory system (heart disease, etc.), the per cents in 1909 and 1908 were 16.0 and 14.5 and the death rates per 100,000 were 215.3 and 204.9, respectively.

The per cents of total deaths from pneumonia and other diseases of the respiratory system were 9.4 and 10.5, while the death-rates per 100,000 for this class of diseases were 126.7 and 148.2.

Diseases of the nervous system caused 9.3 per cent of all deaths in 1909 and 9.6 per cent in 1908, the death-rates per 100,000 being 124.8 and 135.1.

Other prominent causes of death in 1909 and 1908 were: Diseases of the digestive system, miscellaneous violence, cancer, and Bright's disease.

Typhoid fever, as usual, was the most fatal epidemic disease, causing 1.5 per cent of all deaths in 1909 and 1.7 per cent in 1908. However, the total for typhoid fever has fallen steadily in recent years, as follows: 1906, 657; 1907, 558; 1908, 540; and 1909, 461.

Diphtheria and croup caused 0.8 per cent of all deaths in 1909 against 1.3 per cent in 1908. Next in order were whooping-cough, measles, malarial fever, influenza, scarlet fever, smallpox (causing 6 deaths in 1909 and 9 in 1908), and plague (causing only 1 death in 1909 against 5 in 1908).

Geographic Divisions.—Analysis of causes of death in different localities reveals marked contrasts between the several geographic divisions in the relative prevalence of various diseases.

In the coast counties of both Northern and Central California, as well as in Southern California outside Los Angeles, relatively high proportions of all deaths are due to diseases of the nervous system, the explanation being the presence of State hospitals in these three geographic divisions.

The interior counties of Northern California show high proportions for miscellaneous deaths from violence, as drowning, railroad injuries, other accidents, etc.

In the interior counties of both Northern and Central California the proportions are high for typhoid fever and for diphtheria and croup. Typhoid fever was also quite prevalent each year in the counties south of Tehachapi other than Los Angeles.

Each year large proportions of all deaths in San Francisco and the other bay counties were from diseases of the circulatory system (heart disease, etc.) and also from pneumonia. The suburban district leads in deaths from diarrhea among children under 2 years of age, and the main city leads especially in the proportion of suicides among all decedents.

The proportion of deaths from tuberculosis was very high indeed each year in Los Angeles, as well as in the other counties of Southern California, on account of the many deaths occurring among newcomers from the East.

Contrast between mortality in the metropolitan area and in the rural counties north of Tehachapi shows that the urban territory excels in deaths from heart disease, Bright's disease, cancer, pneumonia, infancy, suicide, whooping-cough, and measles, while the country districts excel in deaths from diseases of the nervous system, accidental violence, "old age," typhoid fever, diphtheria and croup, and malarial fever.

Much the same contrast appears between mortality in chartered cities as a class and in all the rest of the State as a whole.

Tuberculosis.—The "great white plague" caused altogether 4,673 deaths, or 15.1 per cent of all, in 1909 and 4,565, or 14.6 per cent, in 1908. The per cent of total deaths from tuberculosis was no less than 19.8 each year for Southern California, against only 13.0 in 1909 and 12.5 in 1908 for the counties north of Tehachapi.

Among cities, the per cent of tuberculosis deaths was highest for San Bernardino, Pasadena, Riverside, Los Angeles, Stockton, and San Diego, all except Stockton being in Southern California.

Classification of deaths from tuberculosis by length of residence shows that north of Tehachapi many native Californians and old time residents succumb to this disease. The per cents of native Californians among tuberculosis victims in 1909 and 1908 were 38.9 and 37.8 for Northern and Central California together against only 17.0 and 15.7 for Southern California, being 30.2 and 29.2 for the entire State. Similarly, the per cents who had lived here at least 10 years were 27.9 and 29.7 for the counties north of Tehachapi in 1909 and 1908 as compared with only 19.8 and 17.6 for those to the south, being 24.6 and 25.0 for the State as a whole.

South of Tehachapi, on the other hand, deaths from tuberculosis occur largely among newly arrived consumptives. The per cents of tuberculosis victims who had lived in the State less than 10 years were as great as 54.8 and 52.5 in 1909 and 1908 for Southern California as compared with only 16.3 and 17.0 for counties north of Tehachapi and 31.9 and 30.8 for the whole State. Moreover, the length of residence in California was less than a year for 16.4 per cent of the victims south of Tehachapi in 1909 and for 17.3 per cent in 1908, the corresponding per cents for the entire State being only 8.2 and 8.8. In fact, of all who died of tuberculosis in Southern California, those who had been in the State less than a month were 2.0 per cent each year, those less than three months 7.0 and 6.6 per cent in 1909 and 1908, respectively, and those less than half a year altogether 11.2 and 12.0 per cent.

Among tuberculosis victims in cities, the per cents for residents of less than 10 years' standing were as follows in 1909 and 1908, respectively: Pasadena, 76.3 and 77.0; Riverside, 58.8 and 69.8; San Diego, 58.0 and 57.6; San Bernardino, 54.6 and 55.1; and Los Angeles, 55.7 and 44.7. Moreover, the per cents for residents of less than a single year's standing were as follows: San Diego, 20.4 and 20.8; Riverside, 17.6 and 25.6; Los Angeles, 17.0 and 13.3; Pasadena, 13.9 and 24.8; and San Bernardino, 9.1 and 17.4.

In short, the death-rate of California is evidently swollen considerably by deaths occurring here from disease contracted elsewhere. For where tuberculosis is most prevalent a large proportion of the victims are residents of very short standing. Moreover, infection from these newly arrived consumptives accounts for some of the deaths among native Californians and old-time residents.

Sex.—Of 30,985 decedents in 1909, the males were 19,324, or 62.4 per cent, and the females 11,661, or 37.6 per cent, while among the

31,287 in 1908, 19,469, or 62.2 per cent, were male and 11,818, or 37.8 per cent, female. Each year the per cent male was highest for Northern California and next for Central California.

The per cents male were above the general averages for deaths from suicide, other violence, typhoid fever, pulmonary tuberculosis, and heart disease, etc. The female decedents outnumbered the males each year only for cancer and whooping-cough.

Race.—In 1909 the white decedents numbered 29,323, or 94.6 per cent; the Chinese, 694; the Japanese, 450; the negroes, 388; and the Indians, 130. The figures for 1908 were: White, 29,673, or 94.8 per cent; Chinese, 697; Japanese, 431; negro, 360; and Indian, 126. The per cent white was highest each year for Southern California.

The per cents white were very high for deaths from smallpox, scarlet fever, diphtheria and croup, measles, cancer, diseases of the nervous and circulatory systems, Bright's disease, and early infancy.

The proportion of Caucasians among all decedents was low each year for typhoid fever, which causes many deaths of Japanese, and for tuberculosis, which kills many Chinese and negroes.

Nativity.—Of the white decedents in 1909, 10,763, or 36.7 per cent, were born in other states; 9,457, or 32.2 per cent, were foreign born; 8,231, or 28.1 per cent were born in California; and 872, or 3.0 per cent were of unknown nativity. In 1908 those born in other states were 10,662, or 35.9 per cent; the foreign born were 9,458, or 31.9 per cent; those born in California were 8,575, or 28.9 per cent; and the unknown were 978, or 3.3 per cent.

The proportion born elsewhere in the United States is very high for Southern California, especially Los Angeles. The proportion foreign born is notably great only for Central California, especially for San Francisco and the other bay counties. The proportion of native Californians among decedents was greatest each year in Central California, and next in Northern California.

The proportion of native Californians is especially great for deaths from early infancy, diarrhea and enteritis, whooping-cough, measles, scarlet fever, diphtheria and croup, meningitis, tuberculosis other than pulmonary, typhoid fever, childbirth, and pneumonia.

The per cents born in other states were above the general averages each year for deaths from diseases of the nervous system other than meningitis, Bright's disease, diseases of the circulatory system, cancer, malarial fever, pulmonary tuberculosis, diseases of the digestive system other than diarrhea, and general diseases other than tuberculosis and cancer (*i. e.* diabetes, alcoholism, etc.).

The proportion foreign born were above the general averages for deaths from cancer, heart disease, etc., pneumonia and other diseases of the respiratory system, Bright's disease, diseases of the nervous and digestive systems except meningitis and diarrhea, respectively, and general diseases except tuberculosis and cancer (diabetes, alcoholism, etc.).

Age Periods.—In 1909 there were 16,281 deaths at the productive ages, 15 to 64 years; 8,904 at the period of old age, 65 years and over; 3,480 in infancy, or the first year of life; 1,313 in childhood, 1 to 4 years; 928 in youth, 5 to 14 years; and only 79 of unknown age. For 1908 the figures were: 15 to 64 years, 16,486; 65 years and over, 8,603; under 1 year, 3,592; 1 to 4 years, 1,393; 5 to 14 years, 1,082; and unknown, 131. The per cent distribution of deaths for 1909 and 1908, respectively, was: Productive ages, 52.6 and 52.7; period of old age, 28.7 and 27.5; infancy, 11.2 and 11.5; childhood, 4.2 and 4.4; youth, 3.0 and 3.5; and age unknown, 0.3 and 0.4.

The per cent of deaths occurring at the productive ages was especially high each year for both San Francisco and Los Angeles counties. The proportion of deaths at the period of old age is particularly large only for the rural counties north of Tehachapi. On the other hand, the proportion of deaths in both infancy and childhood is notably great for the metropolitan area, comprising San Francisco and the other bay counties.

At the years from 15 to 64, large proportions of deaths occur from childbirth, suicide, tuberculosis of the lungs, typhoid fever, miscellaneous violence, general diseases (diabetes, alcoholism, etc.), cancer, diseases of the digestive system except diarrhea, malarial fever, and Bright's disease.

At 65 years and over, the per cents were high in 1909 and 1908 for deaths from influenza, miscellaneous causes (including "old age" or senility), diseases of the circulatory system (heart disease, etc.), pneumonia and other diseases of the respiratory system, diseases of the nervous system except meningitis, Bright's disease, cancer, and diarrhea of elderly people.

Under 1 year occur large proportions of deaths from early infancy and infantile diarrhea, whooping-cough, meningitis, measles, pneumonia and other diseases of the respiratory system, and tuberculosis other than pulmonary.

At 1 to 4 years the diseases especially fatal are measles, diphtheria and croup, whooping-cough, diarrhea and enteritis, meningitis, scarlet fever, tuberculosis of other organs than the lungs, pneumonia and other diseases of the respiratory system, and miscellaneous violence (accidental injuries, etc.).

At 5 to 14 years the diseases causing exceptionally large proportions of deaths are scarlet fever, diphtheria and croup, measles, meningitis. typhoid fever, tuberculosis other than pulmonary, diarrhea and other diseases of the digestive system, general diseases other than tuberculosis and cancer, and miscellaneous violence.

INTRODUCTION.

Sources of Information.—The death registration law of 1905 was enforced throughout California quite faithfully in 1909 and 1908. This law forbids the interment or other disposition of a body except by authority of the permit obtained by filing a satisfactory death certificate with the Local Registrar (or Subregistrar) of the district where the death occurred. The Local Registrars are the Health Officers of cities having freeholders' charters, the clerks in other cities and incorporated towns, and the county recorders for the unincorporated portions of counties, the recorders appointing subregistrars to receive certificates and issue permits at points remote from county seats.

The original death certificates thus filed with Local Registrars (or Subregistrars) each month are required by law to be forwarded to the

State Registrar on or before the fifth day of the following month, the date having been changed from the eighth to the fifth by an amendment enacted in 1907. In the State Bureau of Vital Statistics the statistical data on the death certificates are transferred to tabulation cards such as are used in the Federal Census Bureau by means of a keyboard punching machine. The tabulation cards are punched to show for each death the following particulars: Sex, color (or race), month of death, age, conjugal (or marital) condition, birthplace, birthplace of father, birthplace of mother (by countries for the foreign born), occupation, cause of death, and length of residence in California. Occupations and causes of death are necessarily designated by index numbers, the key for occupations being like that used in the Vital Statistics Division of the Federal Census Bureau, and the key for deaths agreeing with the International Classification of Causes of Death. Each tabulation card also shows, by certain holes punched according to a definite system, the registration district (the county and the freeholders' charter city or other city or town), as well as the local registered number of the certificate to which the card corresponds.

Although the tabulation cards are meant to be sorted and counted by electrical tabulating devices such as are used in the Federal Census Bureau and other statistical offices, the cards in the California Bureau of Vital Statistics have so far been sorted and tabulated only by hand. On this account the tabulations have necessarily been limited to causes of death, and, in addition, to only sex, race, nativity (of white decedents), and age periods. Because of the lack of clerical assistance it has also been impossible to make these detailed tabulations for leading cities or individual counties, but only for certain geographic divisions. However, total deaths have been tabulated by causes for freeholders' charter cities in both 1909 and 1908 as well as for all counties in 1909 alone.

Geographic Divisions.—For convenience in tabulation the fifty-eight counties of California have been grouped in three main and eight minor geographic divisions. The three main divisions are Northern, Central, and Southern California. The line between Northern and Central California has been drawn at the southern boundary of Placer, Sutter, Colusa, Napa, and Sonoma counties, or the northern boundary of El Dorado, Sacramento, Yolo, and Marin counties. This dividing line extends irregularly from Lake Tahoe to the Pacific Ocean somewhat north of San Francisco Bay. The line between Central and Southern California has been drawn at the southern boundary of Inyo, Kern, and San Luis Obispo counties, or the northern boundary of San Bernardino, Los Angeles, Ventura, and Santa Barbara counties. This line is familiarly located by Tehachapi pass.

In both Northern and Central California, divisions have been made between the coast and the interior counties. In each case the coast counties include some counties not actually contiguous to the Pacific Ocean but yet on the westward side of the Coast Range. Moreover, in Central California, San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo) have been made minor geographic divisions. Similarly, in Southern California, Los Angeles has been made a minor geographic division in contrast with the other seven counties south of Tehachapi.

The three main and eight minor geographic divisions are as follows, the counties in each group being arranged alphabetically for the sake of ready reference:

TABLE 1.—*Main and Minor Geographic Divisions of California, with Counties Included in Each.*

NORTHERN CALIFORNIA.

Coast Counties.

Del Norte
Humboldt
Lake
Mendocino
Napa
Sonoma
Trinity

Interior Counties.

Butte
Colusa
Glenn
Lassen
Modoc
Nevada
Placer
Plumas
Shasta
Sierra
Siskiyou
Sutter
Tehama
Yuba

CENTRAL CALIFORNIA.

San Francisco.

(City and County.)

Other Bay Counties.

Alameda
Contra Costa
Marin
San Mateo

Coast Counties.

Monterey
San Benito
San Luis Obispo
Santa Clara
Santa Cruz

Interior Counties.

Alpine
Amador
Calaveras
El Dorado
Fresno
Inyo
Kern
Kings
Madera
Mariposa
Merced
Mono
Sacramento
San Joaquin
Solano
Stanislaus
Tulare
Tuolumne
Yolo

SOUTHERN CALIFORNIA.

Los Angeles.

Other Counties.

Imperial
Orange
Riverside
San Bernardino
San Diego
Santa Barbara
Ventura

DEATH TOTALS AND DECREASE.

The State.—The following table gives the death total for California, in comparison with the birth and marriage totals, for the four calendar years covered by the operations of the present registration law:

TABLE 2.—*Death Total Compared with Birth and Marriage Totals, for California: 1906 to 1909.*

	1909.	1908.	1907.	1906.
Deaths	30,985	31,287	31,095	29,303
Births	30,882	28,077	24,674	20,974
Marriages	22,917	21,739	23,005	21,317

It appears from this table that, while the birth total has risen steadily since 1906 through continued improvement in the completeness of registration and while the marriage total has fluctuated variably, having risen and fallen and then risen again, the death total for California after increasing from 1906 to 1908 (especially between 1906 and 1907) decreased sharply in 1909.

The death total, exclusive of stillbirths, rose from 29,303 in 1906 to 31,095 in 1907 and to 31,287 (the maximum) in 1908 and then fell to 30,985 in 1909.

The increase of deaths in 1906 to 1907 was 1,792, or 6.1 per cent, and in 1907 to 1908 was 192, or 0.6 per cent. The decrease that followed in 1908 to 1909 was 302, or 1.0 per cent, so that the death total for 1909 is below that of 1907 by no less than 110 for the State as a whole.

Geographic Divisions.—The following table gives the death totals for the several geographic divisions in the four years, 1906 to 1909, inclusive, as well as the number and per cent of decrease for 1908 to 1909:

TABLE 3.—*Death Totals, with Decrease 1908 to 1909, for Geographic Divisions: 1906 to 1909*

GEOGRAPHIC DIVISION.	Deaths.				Decrease: 1908 to 1909.	
	1909.	1908.	1907.	1906.	Number.	Per Cent.
THE STATE	30,985	31,287	31,095	29,303	302	1.0
Northern California	3,946	4,148	3,944	3,528	202	4.8
Coast counties	1,913	1,943	1,761	1,614	30	1.5
Interior counties	2,033	2,205	2,183	1,914	172	7.8
Central California	17,599	18,145	18,063	17,692	546	3.0
San Francisco	6,150	6,260	6,575	7,151	110	1.8
Other bay counties	4,108	4,265	4,426	3,911	157	3.7
Coast counties	2,167	2,131	2,121	2,223	36*	1.7*
Interior counties	5,174	5,489	4,941	4,407	315	5.7
Southern California	9,440	8,994	9,088	8,083	446*	5.0*
Los Angeles	6,392	6,011	6,346	5,471	381*	6.3*
Other counties	3,048	2,983	2,742	2,612	65*	2.2*
Northern and Central California	21,545	22,293	22,007	21,220	748	3.4
Coast counties	14,338	14,599	14,883	14,899	261	1.8
Interior counties	7,207	7,694	7,124	6,321	487	6.3
Metropolitan area	10,258	10,525	11,001	11,062	267	2.5
Rural counties	11,287	11,768	11,006	10,158	481	4.1

*Increase.

This table shows that the decrease of deaths in 1908 to 1909 was confined to Northern and Central California (except the coast counties of Central California). Increases appear not only for Los Angeles and the rest of Southern California, but also for the coast counties of Central California (Monterey, San Benito, San Luis Obispo, Santa Clara, and Santa Cruz).

The increase of deaths in 1907 to 1908, however, appeared only in the counties north of Tehachapi exclusive of San Francisco and the other bay counties (or the whole metropolitan area) and in the counties south of Tehachapi other than Los Angeles. There were decreases in 1907 to 1908 for San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), north of Tehachapi, as well as for Los Angeles in Southern California.

It may be added that the death total for 1909 was below that for 1907 only for San Francisco and the other bay counties, comprising the metropolitan area, and for the interior counties of Northern California. In the remaining geographic divisions more deaths were reported for 1909 than for 1907.

The death total for Southern California was 9,440 in 1909 as compared with 8,994 in 1908, an increase of 446, or 5.0 per cent, the rate of gain being no less than 6.3 for Los Angeles alone against 2.2 for the other counties. The total for Southern California in 1907 was 9,088, or 94 above that for the succeeding year.

For Northern and Central California together, the deaths in 1909 totaled 21,545 against 22,293 in 1909, a decrease of 748, or 3.4 per cent. The per cent of decrease was 4.8 for Northern California and 3.0 for Central California. The total for the counties north of Tehachapi in 1907 was 22,007, or 286 below that for the year following.

The total for the metropolitan area was 10,258 in 1909 as compared with 10,525 in 1908 and 11,001 in 1907, the decrease of 476, or 4.3 per cent, in 1907 to 1908, being followed by another decrease of 267, or 2.5 per cent, in 1908 to 1909. For the rural counties north of Tehachapi, however, the death total was 11,287 in 1909 against 11,768 in 1908 and 11,006 in 1907, the increase in 1907 to 1908 of 762, or 6.9 per cent, being followed by a decrease in 1908 to 1909 of 481, or 4.1 per cent.

The deaths in San Francisco totaled 6,150 for 1909 as compared with 6,260 for 1908 and 6,575 for 1907, the decrease of 315, or 4.8 per cent, in 1907 to 1908 being followed by a smaller decrease of 110, or 1.8 per cent, in 1908 to 1909. For the other bay counties, likewise, the deaths in 1909 were only 4,108 against 4,265 in 1908 and 4,426 in 1907, the decrease in 1907 to 1908 of 161, or 3.6 per cent, being followed by a similar decrease in 1908 to 1909 of 157, or 3.7 per cent.

Counties.—The table on the following page gives the decrease (or increase) of deaths for each county, as well as the per cent of decrease for those showing decreases like that appearing for the State as a whole.

TABLE 4.—*Decrease of Deaths, for Counties: 1908 to 1909.*

COUNTY.	Deaths. 1909	Deaths. 1908.	Increase.	Decrease.	Per Cent of Decrease.
CALIFORNIA	30,985	31,287	--------	302	1.0
Alameda	3,210	3,305	--------	95	2.9
Alpine	--------	4	--------	4	100.0
Amador	116	102	14	--------	--------
Butte	435	473	--------	38	8.0
Calaveras	128	135	--------	7	5.2
Colusa	80	83	--------	3	3.6
Contra Costa	334	399	--------	65	16.3
Del Norte	31	38	--------	7	18.4
El Dorado	125	132	--------	7	5.3
Fresno	806	970	--------	164	16.9
Glenn	28	50	--------	22	44.0
Humboldt	334	362	--------	28	7.7
Imperial	40	75	--------	35	46.7
Inyo	36	43	--------	7	16.3
Kern	383	367	16	--------	--------
Kings	161	179	--------	18	10.1
Lake	70	75	--------	5	6.7
Lassen	43	28	15	--------	--------
Los Angeles	6,392	6,011	381	--------	--------
Madera	73	60	13	--------	--------
Marin	308	276	32	--------	--------
Mariposa	48	42	6	--------	--------
Mendocino	317	283	34	--------	--------
Merced	116	135	--------	19	14.1
Modoc	33	50	--------	17	34.0
Mono	7	6	1	--------	--------
Monterey	316	293	23	--------	--------
Napa	518	489	29	--------	--------
Nevada	229	256	--------	27	10.5
Orange	855	327	28	--------	--------
Placer	185	172	13	--------	--------
Plumas	79	105	--------	26	24.8
Riverside	435	367	68	--------	--------
Sacramento	1,100	1,165	--------	65	5.6
San Benito	77	94	--------	17	18.1
San Bernardino	902	839	63	--------	--------
San Diego	751	846	--------	95	11.2
San Francisco	6,150	6,260	--------	110	1.8
San Joaquin	911	941	--------	30	3.2
San Luis Obispo	199	183	16	--------	--------
San Mateo	256	285	--------	29	10.2
Santa Barbara	347	322	25	--------	--------
Santa Clara	1,190	1,213	--------	23	1.9
Santa Cruz	385	348	37	--------	--------
Shasta	310	334	--------	24	7.2
Sierra	30	56	--------	26	46.4
Siskiyou	192	196	--------	4	2.0
Solano	348	367	--------	19	5.2
Sonoma	611	649	--------	38	5.9
Stanislaus	197	215	--------	18	8.4
Sutter	52	74	--------	22	29.7
Tehama	188	158	30	--------	--------
Trinity	32	47	--------	15	31.9
Tulare	291	318	--------	27	8.5
Tuolumne	134	138	--------	4	2.9
Ventura	218	207	11	--------	--------
Yolo	194	170	24	--------	--------
Yuba	149	170	--------	21	12.4

The county table shows that of the fifty-eight counties in California only twenty-one reported more deaths in 1909 than in 1908, these being as follows: Amador, Kern, Lassen, Madera, Marin, Mariposa, Mendocino, Mono, Monterey, Napa, Placer, San Luis Obispo, Santa Cruz, Tehama, and Yolo, north of Tehachapi; and Los Angeles, Orange, Riverside, San Bernardino, Santa Barbara, and Ventura, in Southern California.

No less than thirty-seven counties reported fewer deaths in 1909 than in 1908.

The decreases were relatively greatest for certain small counties as follows: Alpine, Imperial, Sierra, Glenn, Modoc, Trinity, Sutter, Plumas, Del Norte, and San Benito. The per cent of decrease in deaths was also notably great for the following counties: Fresno, 16.9; Contra Costa and Inyo, each, 16.3: Merced, 14.1; Yuba, 12.4; San Diego, 11.2; Nevada, 10.5; San Mateo, 10.2; and Kings, 10.1. Other counties showing decreases were as follows, in descending order: Tulare, Stanislaus, Butte, Humboldt, Shasta, Lake, Sonoma, Sacramento, El Dorado, Calaveras, Solano, Colusa, San Joaquin, Alameda, Tuolumne, Siskiyou, Santa Clara, and San Francisco.

Cities.—The table below gives figures for cities similar to those already presented for counties. To allow cross-reference to birth totals, which are available only for freeholders' charter cities, city figures on deaths are limited throughout this discussion to cities of the class named, numbering twenty-six in 1909 and twenty-four in 1908. These cities are arranged in the table according to geographic location, and totals are shown not only for chartered cities as a class, but also for the rest of the State as a whole.

TABLE 5.—*Decrease of Deaths, for Individual Cities and Rest of State: 1908 to 1909.*

CITY.	Deaths.		Increase.	Decrease.	Per Cent of Decrease.
	1909.	1908.			
CALIFORNIA	30,985	31,287	---------	302	1.0
Freeholders' charter cities	17,472*	17,480†	---------	8	‡
Northern California.					
Eureka	180	198	---------	18	9.1
Napa	70	77	---------	7	9.1
Santa Rosa	105	107	---------	2	1.9
Grass Valley	58	88	---------	30	34.1
Central California.					
San Francisco	6,150	6,260	---------	110	1.8
Alameda	309	345	---------	36	1.0
Berkeley	405	448	---------	43	1.0
Oakland	1,642	1,646	---------	4	0.2
Richmond	92	---------	92	---------	--------
Salinas	68	63	5	---------	--------
Palo Alto	48	---------	48	---------	--------
San Jose	386	389	---------	3	0.7
Santa Cruz	190	167	23	---------	--------
Watsonville	103	103	---------	---------	--------
Fresno	288	365	---------	77	21.1
Sacramento	698	755	---------	57	7.5
Stockton	455	481	---------	26	5.4
Vallejo	172	192	---------	20	1.0
Southern California.					
Los Angeles	4,013	3,752	261	---------	--------
Long Beach	235	219	16	---------	--------
Pasadena	410	373	33	---------	--------
Santa Monica	103	110	---------	7	6.4
Riverside	238	204	34	---------	--------
San Bernardino	250	262	---------	8	3.1
San Diego	601	701	---------	100	14.3
Santa Barbara	203	175	28	---------	--------
Rest of State	13,513	13,807	---------	294	2.1

*26 Freeholders' charter cities.

†24 Freeholders' charter cities.

‡Less than one tenth of 1 per cent.

It appears from this table that the death total for chartered cities as a class was 17,472 in 1909 as compared with 17,480 in 1908, a decrease of 8 despite the addition of two new cities (Palo Alto with 48 deaths and Richmond with 92). The total for the twenty-four cities shown for both years was 17,332 in 1909 against 17,480 in 1908, a decrease of 148, or 0.8 per cent.

The deaths in the State outside chartered cities as a class (numbering twenty-six in 1909 and twenty-four in 1908) totaled 13,513 in 1909 against 13,807 in 1908, a loss of 294, or 2.1 per cent. Exclusive only of the same twenty-four cities shown for both years, the death total for rural districts was 13,653 in 1909 as compared with 13,807 in 1908, a loss of only 154, or 1.1 per cent.

Of the twenty-four chartered cities shown for both 1909 and 1908, only seven reported more deaths in 1909 than in 1908, one showed no change, and as many as sixteen reported fewer deaths in 1909 than in 1908.

The seven cities showing an increase of deaths included only Salinas and Santa Cruz, north of Tehachapi, and, south of Tehachapi, Los Angeles, Long Beach, Pasadena, Riverside, and Santa Barbara. Watsonville, showing no change, lies north of Tehachapi like its neighbors, Salinas and Santa Cruz.

In addition to the exceptionally large decrease shown for Grass Valley, the most notable decreases in death totals were as follows: Fresno, 21.1 per cent; San Diego, 14.3; Eureka and Napa, each 9.1; Sacramento, 7.5; Santa Monica, 6.4; and Stockton, 5.4. The other cities showing decreases were as follows, in descending order of per cents: San Bernardino, Santa Rosa, San Francisco, Alameda, Berkeley, Vallejo, San Jose, and Oakland.

It may be noted that the 17,472 deaths in the twenty-six chartered cities in 1909 form 56.4 per cent of the State total, 30,985, and that the 17,480 deaths in the twenty-four such cities in 1908 form 55.9 per cent of the State total, 31,287.

DEATH-RATES.

Population Estimates.—With the publication of the Federal Census results for 1910, population estimates for preceding years can be revised with strict accuracy on the basis of county and city totals for June 1, 1900, and April 15, 1910, the estimates being made for the sake of uniformity as of July 1, or the middle of each year. The estimated midyear population for both 1908 and 1909 has been calculated on the assumption that the numerical increase (or decrease) was the same each month between June 1, 1900, and April 15, 1910. The average monthly increase is obtained by dividing the increase for the whole decade by 118.5 (the number of months between June 1, 1900, and April 15, 1910), and the total increase to July 1, 1908, is then got by multiplying by 97 (the number of months between June 1, 1900, and July 1, 1908), the increase to July 1, 1909, being obtained similarly by multiplying by 109 (the number of months between June 1, 1900, and July 1, 1909). The estimated midyear population for 1908 and 1909 is found, finally, by adding to the population enumerated June 1, 1900, the estimated increase to July 1, 1908 or 1909, as the case may be.*

Geographic Divisions.—For convenience in tabulation the fifty-eight counties of California have been grouped in three main and eight minor geographic divisions, shown in the table which follows, the counties in each group being arranged alphabetically for the sake of ready reference. Death-rates are also shown for the metropolitan area, comprising San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in contrast with the rural counties of Northern and Central California.

The following table gives the estimated midyear population, deaths, and death-rate per 1,000 population for the several counties arranged by geographic divisions in both 1909 and 1908:

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*The estimated midyear population for Alameda County, for instance, was obtained as follows:

Population enumerated April 15, 1910	246,131
Population enumerated June 1, 1900	130,197
Increase, June 1, 1900, to April 15, 1910 (118.5 months)	115,934
Increase, June 1, 1900, to July 1, 1909 (× 109 ÷ 118.5)	106,640
Increase, June 1, 1900, to July 1, 1908 (× 97 ÷ 118.5)	94,900
Estimated midyear population, 1909	236,837
Estimated midyear population, 1908	225,097

Similarly, the estimated midyear population for Alameda city was obtained thus:

Population enumerated April 15, 1910	23,383
Population enumerated June 1, 1900	16,464
Increase, June 1, 1900, to April 15, 1910, (118.5 months)	6,919
Increase, June 1, 1900, to July 1, 1909 (× 109 ÷ 118.5)	6,364
Increase, June 1, 1900, to July 1, 1908 (× 97 ÷ 118.5)	5,665
Estimated midyear population, 1909	22,828
Estimated midyear population, 1908	22,129

TABLE 6.—*Estimated Midyear Population, Deaths, and Death-rate per 1,000 Population, for Counties arranged Geographically: 1909 and 1908.*

COUNTY.	Estimated Midyear Population.		Deaths.		Death-rate per 1,000 Population.	
	1909.	1908.	1909.	1908.	1909.	1908.
THE STATE	2,306,001	2,215,615	30,985	31,287	13.4	14.1
Northern California	295,108	290,858	3,946	4,148	13.4	14.3
Coast counties	135,468	133,247	1,913	1,943	14.1	14.6
Del Norte	2,416	2,415	31	38	12.8	15.7
Humboldt	33,316	32,632	334	362	10.0	11.1
Lake	5,565	5,615	70	75	12.6	13.4
Mendocino	23,652	23,301	317	283	13.4	12.1
Napa	19,532	19,192	518	489	26.5	25.5
Sonoma	47,599	46,595	611	649	12.8	13.9
Trinity	3,388	3,497	32	47	9.4	13.4
Interior counties	159,640	157,611	2,033	2,205	12.7	14.0
Butte	26,485	25,453	435	473	16.4	18.6
Colusa	7,702	7,665	80	83	10.4	10.8
Glenn	7,010	6,805	28	50	4.0	7.3
Lassen	4,779	4,749	43	28	9.0	5.9
Modoc	6,102	5,989	33	50	5.4	8.3
Nevada	15,182	15,469	229	256	15.1	16.5
Placer	18,041	17,792	185	172	10.3	9.7
Plumas	5,211	5,150	79	105	15.2	20.4
Shasta	18,792	18,629	310	334	16.5	17.9
Sierra	4,092	4,088	30	56	7.3	13.7
Siskiyou	18,654	18,467	192	196	10.3	10.6
Sutter	6,293	6,248	52	74	8.3	11.8
Tehama	11,369	11,328	188	158	16.5	13.9
Yuba	9,928	9,784	149	170	15.0	17.4
Central California	1,295,427	1,254,567	17,599	18,145	13.6	14.5
San Francisco	410,969	403,462	6,150	6,260	15.0	15.5
Other bay counties	317,200	301,660	4,108	4,265	13.0	14.1
Alameda	236,837	225,097	3,210	3,305	13.6	14.7
Contra Costa	30,581	29,201	334	399	10.9	13.7
Marin	24,359	23,406	308	276	12.6	11.8
San Mateo	25,423	23,956	256	285	10.1	11.9
Coast counties	158,293	154,559	2,167	2,131	13.7	13.8
Monterey	23,764	23,281	316	293	13.3	12.6
San Benito	7,928	7,786	77	94	9.7	12.1
San Luis Obispo	19,163	18,885	199	183	10.4	9.7
Santa Clara	81,669	79,307	1,190	1,218	14.6	15.3
Santa Cruz	25,769	25,300	385	348	14.9	13.8
Interior counties	408,965	394,886	5,174	5,489	12.7	13.9
Alpine	325	345	------	4	------	11.6
Amador	9,249	9,454	116	102	12.5	10.8
Calaveras	9,334	9,539	128	135	13.7	14.2
El Dorado	7,612	7,763	125	132	16.4	17.0
Fresno	72,627	68,800	806	970	11.1	14.1
Inyo	6,766	6,508	36	43	5.3	6.6
Kern	36,013	33,862	383	367	10.6	10.8
Kings	15,720	15,076	161	179	10.2	11.9
Madera	8,207	8,004	73	60	8.9	7.5
Mariposa	4,017	4,095	48	42	11.9	10.3
Merced	14,672	14,072	116	135	7.9	9.6
Mono	2,052	2,065	7	6	3.4	2.9
Sacramento	66,051	63,834	1,100	1,165	16.7	18.3
San Joaquin	49,506	47,950	911	941	18.4	19.6
Solano	27,285	26,939	348	367	12.8	13.6
Stanislaus	21,482	20,168	197	215	9.2	10.7
Tulare	34,072	32,344	291	318	8.5	9.8
Tuolumne	10,074	10,194	134	138	13.3	13.5
Yolo	13,901	13,870	194	170	14.0	12.3
Southern California	715,466	670,190	9,440	8,994	13.2	13.4
Los Angeles	477,368	443,562	6,392	6,011	13.4	13.6
Other counties	238,098	226,628	3,048	2,983	12.8	13.2
Imperial	13,039	12,302	40	75	3.1	6.1
Orange	33,254	31,762	355	327	10.7	10.3
Riverside	33,349	31,648	435	367	13.0	11.6
San Bernardino	54,399	51,485	902	839	16.6	16.3
San Diego	58,997	55,666	751	846	12.7	15.2
Santa Barbara	27,032	26,141	347	322	12.8	12.3
Ventura	18,028	17,624	218	207	12.1	11.7
Northern and Central California	1,590,535	1,545,425	21,545	22,293	13.5	14.4
Coast counties	1,021,930	992,928	14,338	14,599	14.0	14.7
Interior counties	568,605	552,497	7,207	7,694	12.7	13.9
Metropolitan area	728,169	705,122	10,258	10,525	14.1	14.9
Rural counties	862,366	840,303	11,287	11,768	13.1	14.0

For an estimated midyear population of 2,306,001 in 1909, the 30,985 deaths give a death-rate of 13.4 per 1,000 inhabitants, while for an estimated midyear population of 2,215,615 in 1908, the 31,287 deaths represent a rate of 14.1 per 1,000 population.

It may be added that the 31,095 deaths in 1907 give a rate of 14.6 for an estimated midyear population of 2,125,240, and that the 29,303 deaths in 1906 give a rate of 14.4 for an estimated midyear population of 2,034,861.

The death-rates in 1909 and 1908 were somewhat higher for the counties north of Tehachapi, 13.5 and 14.4, respectively, than for those to the south, 13.2 and 13.4. The rates were also slightly higher each year for Central California, 13.6 and 14.5, than for Northern California, 13.4 and 14.3.

In both 1909 and 1908 the death-rates were much higher for the coast counties of Northern and Central California, 14.0 and 14.7, than for the interior counties north of Tehachapi, 12.7 and 13.9.

Each year, moreover, the death-rates were higher for the metropolitan area (14.1 and 14.9) than for the rural counties of Northern and Central California (13.1 and 14.0); for San Francisco the metropolis (15.0 and 15.5) than for the adjoining bay counties (13.0 and 14.1); and for Los Angeles (13.4 and 13.6) than for the rest of Southern California (12.8 and 13.2).

Counties.—Among the individual counties, Napa shows the highest death-rates, 26.5 for 1909 and 25.5 for 1908, this unenviable prominence being explained, however, by the many deaths of aged persons occurring at the Napa State Hospital and the Veterans' Home of California located in this county of relatively small population. The death-rates in 1909 and 1908, respectively, were next highest for the following counties: San Joaquin, 18.4 and 19.6; Sacramento, 16.7 and 18.3; San Bernardino, 16.6 and 16.3; Shasta, 16.5 and 17.9; Butte, 16.4 and 18.6; El Dorado, 16.4 and 17.0; Plumas, 15.2 and 20.4; Nevada, 15.1 and 16.5; Yuba, 15.0 and 17.4; San Francisco, 15.0 and 15.5; Santa Clara, 14.6 and 15.3; and Alameda, 13.6 and 14.7. These are the counties with death-rates above the State averages of 13.4 for 1909 and 14.1 for 1908. The death-rate also equaled or exceeded the general average for 1909 alone (13.4) in each of the following additional counties: Tehama, 16.5; Santa Cruz, 14.9; Yolo, 14.0; Los Angeles, 13.6; and Mendocino, 13.4. Similarly, the death-rate was above the State average for 1908 alone (14.1) in other counties as follows: Del Norte, 15.7; San Diego, 15.2; Calaveras, 14.2; and Fresno, 14.1.

Cities.—Corresponding figures for chartered cities and the rest of California appear in Table 7. Death-rates are given for only twenty-three cities in 1909 and twenty-one in 1908 (instead of for twenty-six and twenty-four, respectively, as in other tables), because the population of Grass Valley, Salinas, and Watsonville in 1910 had not been announced by the Federal Census Bureau at the time of going to press of this Biennial Report, so that it was impossible to estimate the population of these three small cities by the same safe method employed for the other cities shown in the table.

TABLE 7.—*Estimated Midyear Population, Deaths, and Death-rate per 1,000 Population, for Individual Cities and Rest of State: 1909 and 1908.*

CITY.	Estimated Midyear Population.		Deaths.		Death-rate per 1,000 Population.	
	1909.	1908.	1909.	1908.	1909.	1908.
CALIFORNIA	2,306,001	2,215,615	30,985	31,287	13.4	14.1
Freeholders' charter cities*	1,221,914	1,155,601	17,248	17,226	14.1	14.9
Northern California.						
Eureka	11,483	11,025	180	198	15.7	18.0
Napa	5,650	5,473	70	77	12.4	14.1
Santa Rosa	7,725	7,609	105	107	13.6	14.1
Grass Valley†	----------	----------	58	88	------	------
Central California.						
San Francisco	410,969	403,462	6,150	6,260	15.0	15.5
Alameda	22,828	22,127	309	345	13.5	15.6
Berkeley	38,252	35,495	405	448	10.6	12.6
Oakland	143,503	135,076	1,642	1,646	11.4	12.2
Richmond	6,575	----------	92	--------	14.0	------
Salinas†	----------	----------	68	63	------	------
Palo Alto	4,258	----------	48	--------	11.3	------
San Jose	28,349	27,595	386	389	13.6	14.1
Santa Cruz	10,706	10,150	190	167	17.7	16.5
Watsonville†	----------	----------	103	103	------	------
Fresno	23,896	22,638	288	365	12.1	16.1
Sacramento	43,460	41,899	698	755	16.1	18.0
Stockton	22,792	22,210	455	481	20.0	21.7
Vallejo	11,069	10,728	172	192	15.5	17.9
Southern California.						
Los Angeles	301,824	279,878	4,013	3,752	13.3	13.4
Long Beach	16,562	14,986	235	219	14.2	14.6
Pasadena	28,594	26,449	410	373	14.3	14.1
Santa Monica	7,463	6,978	103	110	13.8	15.8
Riverside	14,632	13,899	238	204	16.3	14.7
San Bernardino	12,248	11,576	250	262	20.4	22.6
San Diego	37,824	35,609	601	701	15.9	19.7
Santa Barbara	11,252	10,739	203	175	18.0	16.3
Rest of State‡	1,084,087	1,060,014	13,790	14,061	12.7	13.3

*Figures are for 23 freeholders' charter cities in both 1909 and 1908.

†Included with "Rest of State," proper estimates not being available because of non-publication of 1910 census population.

‡Includes figures for 3 chartered cities in both 1909 and 1908.

ADDITIONAL NOTE.—Population estimates furnished by the Federal Census Bureau agree with the estimates in the above table, varying by only 1 or 2 in a few cases, except for five cities (Berkeley, Oakland, Fresno, Los Angeles, and Pasadena), for which the estimates of the Census Bureau include corrections for territory annexed between 1900 and 1910. The following table gives revised figures for these five cities, together with changes made by the corrections in the totals for "Freeholders' charter cities" and for "Rest of State."

CITY.	Estimated Midyear Population.		Deaths.		Death-rate per 1,000 Population.	
	1909	1908	1909.	1908.	1909.	1908.
Freeholders' charter cities	1,182,389	1,121,315	17,243	17,226	14.6	15.4
Central California.						
Berkeley	38,264	35,359	405	448	10.6	12.7
Oakland	115,908	110,519	1,642	1,646	14.2	14.9
Fresno	20,860	19,936	288	365	13.8	18.3
Southern California.						
Los Angeles	292,566	272,189	4,013	3,752	13.7	13.8
Pasadena	28,946	27,247	410	373	14.2	13.7
Rest of State	1,123,612	1,094,300	13,742	14,061	12.2	12.8

The death-rate per 1,000 inhabitants is somewhat greater for the class of freeholders' charter cities, 14.1 in 1909 and 14.9 in 1908, than for the State outside such cities, 12.7 and 13.3, respectively.

With corrections of population estimates to cover boundary changes in five cities, the death-rates for chartered cities in 1909 and 1908, respectively, are 14.6 and 15.4, against 12.2 and 12.8 for the rest of the State.

The death-rates were above the city averages of 14.1 and 14.9 in 1909 and 1908, respectively, for the following cities: San Bernardino, 20.4 and 22.6; Stockton, 20.0 and 21.7; Santa Barbara, 18.0 and 16.4; Santa Cruz, 17.7 and 16.5; Sacramento, 16.1 and 18.0; San Diego, 15.9 and 19.7; Eureka, 15.7 and 18.0; Vallejo, 15.5 and 17.9; and San Francisco, 15.0 and 15.5. The death-rate also exceeded the city average of 14.1 in 1909 alone for Riverside (16.3), Pasadena (14.3),* and Long Beach (14.2). Similarly, the death-rate surpassed the average of 14.9 for cities in 1908 only for Fresno (16.1), Santa Monica (15.8), and Alameda (15.6).

On the other hand, the death-rates were remarkably low each year for certain cities, as follows: Berkeley, 10.6 and 12.6 in 1909 and 1908, respectively: Oakland, 11.4 and 12.2 (or 14.2 and 14.9 corrected for boundary charges); Napa, 12.4 and 14.1; Los Angeles, 13.3 and 13.4 (or 13.7 and 13.8, revised for annexations); and San Jose and Santa Rosa, each 13.6 and 14.1.

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*With allowance for boundary changes, however, the death-rate for Pasadena (14.2) falls before the revised rate for chartered cities (14.6).

CAUSES OF DEATH.

The State.—The following table gives the number of deaths in California from certain principal causes, as well as the proportion per 1,000 total deaths and also the death-rate per 100,000 estimated midyear population (2,306,001 in 1909, and 2,215,615 in 1908):

TABLE 8.—*Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, and Death-rate per 100,000, for California: 1908 and 1909.*

CAUSE OF DEATH.	Deaths.		Proportion per 1,000 Total Deaths.		Death-rate per 100.000 Population.	
	1909.	1908.	1909.	1906.	1909.	1908.
ALL CAUSES	30,985	31,287	1,000.0	1,000.0	1,343.7	1,412.1
Typhoid fever	461	540	14.9	17.3	20.0	24.4
Malarial fever	112	80	3.6	2.6	4.9	3.6
Smallpox	6	9	0.2	0.3	0.3	0.4
Measles	119	101	3.8	3.2	5.2	4.6
Scarlet fever	69	104	2.2	3.3	3.0	4.7
Whooping-cough	217	149	7.0	4.8	9.4	6.7
Diphtheria and croup	248	391	8.0	12.5	10.8	17.6
Influenza	82	125	2.6	4.0	3.6	5.6
Plague	1	5	*	0.2	0.1	0.2
Other epidemic diseases	108	126	3.5	4.0	4.7	5.7
Tuberculosis of lungs	4,061	3,945	131.0	126.1	176.1	178.1
Tuberculosis of other organs	612	620	19.8	19.8	26.5	28.0
Cancer	1,945	1,737	62.8	55.5	84.3	78.4
Other general diseases	1,177	1,186	38.0	37.9	51.0	53.5
Meningitis	398	571	12.8	18.2	17.3	25.8
Other diseases of nervous system	2,479	2,422	80.0	77.4	107.5	109.3
Diseases of circulatory system	4,966	4,540	160.3	145.1	215.3	204.9
Pneumonia and broncho-pneumonia	2,081	2,421	67.2	77.4	90.2	109.3
Other diseases of respiratory system	842	861	27.2	27.5	36.5	38.9
Diarrhea and enteritis, under 2 years	966	922	31.2	29.5	41.9	41.6
Diarrhea and enteritis, 2 years and over	270	243	8.7	7.8	11.7	11.0
Other diseases of digestive system	1,596	1,646	51.5	52.6	69.2	74.3
Bright's disease and nephritis	1,858	1.797	60.0	57.4	80.6	81.1
Childbirth	300	339	9.7	10.8	13.0	15.3
Diseases of early infancy	998	1,108	32.2	35.4	43.3	50.0
Suicide	702	757	22.7	24.2	30.4	34.2
Other violence	2,563	2,569	82.7	82.1	111.1	115.9
All other causes	1,748	1,973	56.4	63.1	75.8	89.0

*Less than one tenth of 1 per thousand.

Tuberculosis is the leading single cause of death in California. Each year over one seventh of all deaths in the State were due to this disease, the per cent being 15.1 for 1909 and 14.6 for 1908. In 1909, 13.1 per cent of all deaths were from tuberculosis of the lungs and 2.0 per cent from tuberculosis of other organs, while for 1908 the corresponding figures were 12.6 and 2.0, respectively. The death-rate per 100,000 population was 202.6 in 1909 and 206.1 in 1908 for all forms of tuberculosis.

Next to tuberculosis stand diseases of the circulatory system, heart disease, etc. For 1909, in fact, more deaths were reported from diseases of this class (4,966) than from various forms of tuberculosis (4,673), though in 1908 the total was greater for tuberculosis (4,565) than for heart disease, etc. (4,540). Diseases of the circulatory system caused 16.0 per cent of all deaths in 1909 and 14.5 per cent in 1908, while the death-rates per 100,000 population for this class of diseases were, respectively, 215.3 and 204.9.

Next after tuberculosis and diseases of the circulatory system come diseases of the respiratory system, pneumonia, etc. Diseases of this class caused 9.4 per cent of all deaths in 1909 and 10.5 per cent in 1908. Pneumonia and broncho-pneumonia caused 6.7 per cent of all deaths in 1909 and other diseases of the respiratory system caused 2.7 per cent. while for 1908 the per cent was 7.7 for pneumonia and 2.8 for other diseases. The death-rate per 100,000 population for all diseases of the respiratory system was 126.7 in 1909 and 148.2 in 1908.

For meningitis and other diseases of the nervous system, the per cent of all deaths was 9.3 in 1909 and 9.6 in 1908, while the death-rates per 100,000 population were 124.8 and 135.1, respectively. Meningitis alone caused 1.3 per cent of all deaths in 1909 and 1.8 per cent in 1908.

Diseases of the digestive system (diarrhea and enteritis, etc.) caused 9.1 and 9.0 per cent of all deaths in 1909 and 1908, respectively, and showed death-rates per 100,000 population of 122.8 and 126.9. The deaths from diarrhea and enteritis among children under 2 years of age were 3.1 per cent of the total deaths at all ages in 1909 and 3.0 per cent in 1908.

Violence other than suicide caused 8.3 per cent of all deaths in 1909 and 8.2 per cent in 1908, while suicides alone were 2.3 per cent of all deaths in 1909 and 2.4 per cent in 1908.

Cancers of various kinds caused 6.3 per cent of all deaths in 1909 and 5.6 per cent in 1908, while Bright's disease and nephritis caused 6.0 per cent of the deaths in 1909 and 5.7 per cent in 1908.

Of the epidemic diseases, typhoid fever was by far the most fatal each year, causing 461 deaths, or 1.5 per cent of all in 1909, and 540, or 1.7 per cent in 1908. Diphtheria and croup caused 248 deaths, or 0.8 per cent in 1909 and 391, or 1.3 per cent in 1908. For each of these diseases, fewer deaths were reported for 1909 than for 1908. In fact, the total for typhoid fever has been successively less for each year since 1906, the number of deaths having fallen from 657 in 1906 to 558 in 1907, 540 in 1908, and only 461 in 1909.

Deaths from other important epidemic diseases occurred as follows: Whooping-cough, 217 in 1909 against 149 in 1908; measles, 119 and 101 in 1909 and 1908, respectively; malarial fever, 112 and 80; influenza, 82 and 125; and scarlet fever, 69 and 104. There were 6 deaths from smallpox in 1909 against 9 in 1908, and there was a single death from plague in 1909 as compared with 5 in 1908.

Main Geographic Divisions.—The table which follows gives for the three main geographic divisions in 1909 and 1908 the number of deaths from certain principal causes, as well as the proportion from each cause per 1,000 total deaths. The death-rates per 100,000 population are not shown for geographic divisions, because of the difficulty of estimating population for different localities with sufficiently equal accuracy to justify the comparison of detailed death-rates for individual causes of death.

TABLE 9.—*Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Main Geographic Divisions: 1909 and 1908.*

CAUSE OF DEATH.	The State.		Northern California		Central California.		Southern California.	
	1909.	1908.	1909.	1908.	1909.	1908	1909.	1908.
DEATHS.								
ALL CAUSES	30,985	31,287	3,946	4,148	17,599	18,145	9,440	8,994
Typhoid fever	461	540	73	79	260	319	128	142
Malarial fever	112	80	41	23	63	51	8	6
Smallpox	6	9	1	2	3	6	2	1
Measles	119	101	20	15	64	62	35	24
Scarlet fever	69	104	4	22	43	58	22	24
Whooping-cough	217	149	14	8	136	88	67	53
Diphtheria and croup	248	391	45	46	145	248	58	97
Influenza	82	125	21	32	43	48	18	45
Plague	1	5	------	------	1	5	------	------
Other epidemic diseases	108	126	15	21	64	67	29	38
Tuberculosis of lungs	4,061	3,945	409	336	1,992	2,019	1,660	1,590
Tuberculosis of other organs	612	620	43	64	363	364	206	192
Cancer	1,945	1,737	191	181	1,177	1,058	577	498
Other general diseases	1,177	1,186	141	184	680	702	356	300
Meningitis	398	571	33	62	241	355	124	154
Other diseases of nervous system	2,479	2,422	489	429	1,191	1,273	799	720
Diseases of circulatory system	4,966	4,540	604	618	3,046	2,758	1,316	1,164
Pneumonia and broncho-pneumonia	2,081	2,421	260	379	1,250	1,429	571	613
Other diseases of respiratory system	842	861	98	105	521	516	223	240
Diarrhea and enteritis, under 2 years	966	922	88	91	570	578	308	253
Diarrhea and enteritis, 2 years and over	270	243	31	37	149	127	90	79
Other diseases of digestive system	1,596	1,646	217	217	902	976	477	453
Bright's disease and nephritis	1,858	1,797	176	184	1,092	1,059	590	554
Childbirth	300	339	40	43	182	206	78	90
Diseases of early infancy	998	1,108	96	100	566	681	336	327
Suicide	702	757	75	86	464	495	163	176
Other violence	2,563	2,569	439	423	1,453	1,522	671	624
All other causes	1,748	1,973	282	361	938	1,075	528	537
PROPORTION PER 1,000 TOTAL DEATHS.								
ALL CAUSES	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
Typhoid fever	14.9	17.3	18.5	19.1	14.8	17.6	13.6	15.8
Malarial fever	3.6	2.6	10.4	5.5	3.6	2.8	0.9	0.7
Smallpox	0.2	0.3	0.3	0.5	0.2	0.3	0.2	0.1
Measles	3.8	3.2	5.1	3.6	3.6	3.4	3.7	2.7
Scarlet fever	2.2	3.3	1.0	5.3	2.4	3.2	2.3	2.7
Whooping-cough	7.0	4.8	3.5	1.9	7.7	4.8	7.1	5.9
Diphtheria and croup	8.0	12.5	11.4	11.1	8.2	13.7	6.2	10.8
Influenza	2.6	4.0	5.3	7.7	2.4	2.6	1.9	5.0
Plague	*	0.2	------	------	0.1	0.2	------	------
Other epidemic diseases	3.5	4.0	3.8	5.1	3.6	3.7	3.1	4.2
Tuberculosis of lungs	131.0	126.1	103.7	81.0	113.2	111.3	175.9	176.8
Tuberculosis of other organs	19.8	19.8	10.9	15.4	20.6	20.1	21.8	21.3
Cancer	62.8	55.5	48.4	43.6	66.9	58.3	61.1	55.4
Other general diseases	38.0	37.9	35.7	44.4	38.6	38.7	37.7	33.3
Meningitis	12.8	18.2	8.4	15.0	13.7	19.6	13.1	17.1
Other diseases of nervous system	80.0	77.4	123.9	103.4	67.7	70.2	84.6	80.0
Diseases of circulatory system	160.3	145.1	153.1	149.0	173.1	152.0	139.4	129.4
Pneumonia and broncho-pneumonia	67.2	77.4	65.9	91.4	71.0	78.7	60.5	68.1
Other diseases of respiratory system	27.2	27.5	24.8	25.3	29.6	28.4	23.6	26.7
Diarrhea and enteritis, under 2 years	31.2	29.5	22.3	21.9	32.4	31.9	32.6	28.1
Diarrhea and enteritis, 2 years and over	8.7	7.8	7.9	8.9	8.5	7.0	9.5	8.8
Other diseases of digestive system	51.5	52.6	55.0	52.3	51.3	53.8	50.5	50.4
Bright's disease and nephritis	60.0	57.4	44.6	44.4	62.0	58.4	62.5	61.6
Childbirth	9.7	10.8	10.1	10.4	10.3	11.4	8.3	10.0
Diseases of early infancy	32.2	35.4	24.3	24.1	32.2	37.5	35.6	36.4
Suicide	22.7	24.2	19.0	20.7	26.4	27.3	17.3	19.6
Other violence	82.7	82.1	111.2	102.0	82.6	83.9	71.1	69.4
All other causes	56.4	63.1	71.5	87.0	53.3	59.2	55.9	59.7

*Less than one tenth of 1 per thousand.

This table shows that the proportions for typhoid fever were particularly high for Northern California each year, 18.5 and 19.1 in 1909 and 1908, against State averages of 14.9 and 17.3 per 1,000 total deaths. In 1908 alone, moreover, the proportion for Central California was slightly above the State average, 17.6 against 17.3.

The proportions for diphtheria and croup were above the State averages each year for Central California, being 8.2 and 13.7 for this main division in 1909 and 1908 as compared with 8.0 and 12.5 for the State as a whole. In 1909, however, the proportion of all deaths from diphtheria and croup was especially high for Northern California, 11.4 per 1,000 total deaths against only 8.0 for the State.

For Northern California the proportions are particularly high for diseases of the nervous system other than meningitis, being no less than 123.9 and 103.4 for this main division, against only 80.0 and 77.4 for the whole State, as well as for violence other than suicide, being 111.2 and 102.0 for this division against 87.2 and 82.1 for the State in 1909 and 1908, respectively.

Central California excels especially in the proportions for diseases of the circulatory system (heart disease, etc.), 173.1 and 152.0 against State averages of 160.3 and 145.1. Central California also excels somewhat in the proportions for cancer, 66.9 and 58.3 against 62.8 and 55.5; for pneumonia and broncho-pneumonia, 71.0 and 78.7 against 67.2 and 77.4; and for Bright's disease and nephritis, 62.0 and 58.4 against 60.0 and 57.4.

Southern California leads decidedly in the proportions for tuberculosis. The proportions per 1,000 total deaths for tuberculosis of the lungs were no less than 175.9 and 176.8 for this main division against only 131.0 and 126.1 for the entire State, and for tuberculosis of other organs were 21.8 and 21.3 for this division against 19.8 each year for the State.

Minor Geographic Divisions.—The table on the following pages presents similar figures for the eight minor geographic divisions:

TABLE 10.—*Deaths from Certain Principal Causes, with Proportion*

CAUSE OF DEATH.	Deaths.						
	The State	Northern California.		Central California.			
		Coast Counties	Interior Counties	San Francisco	Other Bay Counties	Coast Counties	Interior Counties
1909.							
ALL CAUSES	30,985	1,913	2,038	6,150	4,108	2,167	5,174
Typhoid fever	461	24	49	60	42	26	182
Malarial fever	112	4	87	7	4	6	46
Smallpox	6		1			2	1
Measles	119	15	5	29	15	6	14
Scarlet fever	69	2	2	18	7	4	14
Whooping-cough	217	12	2	51	56	13	16
Diphtheria and croup	248	13	32	51	36	13	45
Influenza	82	2	19	5	5	11	22
Plague	1				1		
Other epidemic diseases	108	7	8	28	9	6	21
Tuberculosis of lungs	4,061	196	216	675	446	254	617
Tuberculosis of other organs	612	20	23	147	87	55	74
Cancer	1,945	100	91	490	275	143	269
Other general diseases	1,177	65	76	245	148	78	209
Meningitis	398	22	11	68	62	37	74
Other diseases of nervous system	2,479	341	148	308	312	160	411
Diseases of circulatory system	4,966	303	301	1,166	759	413	708
Pneumonia and broncho-pneumonia	2,081	104	156	459	305	135	351
Other diseases of respiratory system	842	55	43	205	109	61	146
Diarrhea and enteritis, under 2 years	966	82	56	168	151	63	193
Diarrhea and enteritis, 2 years and over	270	17	14	50	23	16	60
Other diseases of digestive system	1,596	110	107	318	200	104	280
Bright's disease and nephritis	1,858	83	93	390	268	159	275
Childbirth	300	19	21	72	44	18	48
Diseases of early infancy	998	49	47	221	182	61	152
Suicide	702	32	43	219	94	47	104
Other violence	2,563	160	279	436	326	161	530
All other causes	1,748	129	158	269	192	115	362
1908.							
ALL CAUSES	31,287	1,943	2,205	6,260	4,265	2,131	5,489
Typhoid fever	540	23	56	77	68	29	145
Malarial fever	80	2	21	6	6	3	36
Smallpox	9		2	2	8		1
Measles	101	4	11	23	17	11	11
Scarlet fever	104	7	15	17	6	14	21
Whooping-cough	149	5	3	25	27	6	30
Diphtheria and croup	391	15	81	81	53	27	87
Influenza	125	8	24	5	3	14	26
Plague	5			1	4		
Other epidemic diseases	126	7	14	19	10	5	33
Tuberculosis of lungs	3,945	163	173	718	426	253	622
Tuberculosis of other organs	620	39	25	127	94	45	98
Cancer	1,737	104	77	409	277	116	256
Other general diseases	1,186	86	98	244	162	80	216
Meningitis	571	32	30	112	73	39	131
Other diseases of nervous system	2,422	277	152	351	291	178	453
Diseases of circulatory system	4,540	317	301	1,054	709	367	628
Pneumonia and broncho-pneumonia	2,421	138	241	580	312	150	387
Other diseases of respiratory system	861	50	55	193	124	56	143
Diarrhea and enteritis, under 2 years	922	38	58	171	138	59	210
Diarrhea and enteritis, 2 years and over	243	18	19	32	29	21	45
Other diseases of digestive system	1,646	105	112	357	218	100	301
Bright's disease and nephritis	1,797	97	87	376	281	136	266
Childbirth	339	17	26	76	42	17	71
Diseases of early infancy	1,108	50	50	234	182	66	199
Suicide	757	37	49	202	113	57	123
Other violence	2,569	143	280	463	357	169	533
All other causes	1,973	161	200	305	240	113	417

*Less than one tenth of 1 per thousand.

per 1,000 Total Deaths, for Minor Geographic Divisions: 1909 and 1908.

Deaths.		Proportion per 1,000 Total Deaths.								
Southern California.		The State	Northern California.		Central California.				Southern California.	
Los Angeles ..	Other Counties .		Coast Counties .	Interior Counties	San Francisco	Other Bay Counties .	Coast Counties .	Interior Counties	Los Angeles .	Other Counties
6,392	3,048	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
69	59	14.9	12.5	24.1	9.8	10.2	12.0	25.5	10.8	19.4
2	--------	0.2	--------	0.5	--------	--------	0.9	0.2	0.3	--------
5	8	3.6	2.1	18.2	1.1	1.0	2.8	8.9	0.8	1.0
26	9	3.8	7.8	2.5	4.7	3.7	2.8	2.7	4.1	3.0
15	7	2.2	1.0	1.0	2.9	1.7	1.8	2.7	2.4	2.3
38	29	7.0	6.8	1.0	8.3	13.6	6.0	3.1	5.9	9.5
36	22	8.0	6.8	15.7	8.3	8.8	6.0	8.7	5.6	7.2
9	9	2.6	1.0	9.3	0.8	1.2	5.1	4.3	1.4	3.0
--------	--------	*	--------	--------	--------	0.2	--------	--------	--------	--------
18	11	3.5	3.7	3.9	4.6	2.2	2.8	4.1	2.8	3.6
1,133	527	131.0	100.9	106.2	109.8	108.6	117.2	119.2	177.3	172.9
130	76	19.8	10.5	11.3	23.9	21.2	25.4	14.3	20.3	24.9
433	144	62.8	52.3	44.8	79.7	66.9	66.0	52.0	67.7	47.2
256	100	38.0	34.0	37.4	39.8	36.0	36.0	40.4	40.1	32.8
91	33	12.8	11.5	5.4	11.1	15.1	17.1	14.3	14.2	10.8
496	303	80.0	178.3	72.8	50.1	76.0	73.8	79.4	77.6	99.4
911	405	160.3	158.4	148.1	189.6	184.8	190.6	136.8	142.5	132.9
381	190	67.2	54.4	76.7	74.6	74.2	62.3	67.8	59.6	62.3
146	77	27.2	28.8	21.2	33.3	26.5	28.1	28.2	22.8	25.3
178	130	31.2	16.7	27.5	26.5	36.8	29.1	37.3	27.9	42.7
63	27	8.7	8.9	6.9	8.1	5.6	7.4	11.6	9.9	8.9
347	130	51.5	57.5	52.6	51.7	48.7	48.0	54.1	54.3	42.6
446	144	60.0	43.4	45.8	63.4	65.2	73.4	53.2	69.8	47.2
50	28	9.7	9.9	10.3	11.7	10.7	8.3	9.3	7.8	9.2
228	108	32.2	25.6	23.1	35.9	32.1	28.1	29.4	35.7	35.4
108	55	22.7	16.7	21.2	35.6	22.9	21.7	20.1	16.9	18.0
422	249	82.7	83.6	137.2	70.9	79.4	74.3	102.4	66.0	81.7
355	173	56.4	67.4	75.3	43.8	46.7	53.0	70.0	55.5	56.8
6,011	2,983	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
83	59	17.3	11.8	25.4	12.3	15.9	13.6	26.4	13.8	19.8
5	1	2.6	1.0	9.5	1.0	1.4	1.4	6.6	0.8	0.3
1	--------	0.3	--------	0.9	0.3	0.7	--------	0.2	0.2	--------
11	13	3.2	2.1	5.0	3.7	4.0	5.2	2.0	1.8	4.4
19	5	3.3	3.6	6.8	2.7	1.4	6.6	3.8	3.2	1.7
29	24	4.8	2.6	1.4	4.0	6.3	2.8	5.5	4.8	8.0
69	28	12.5	7.7	14.1	12.9	12.4	12.7	15.8	11.5	9.4
25	20	4.0	4.1	10.9	0.8	0.7	6.6	4.7	4.2	6.7
--------	--------	0.2	--------	--------	0.2	0.9	--------	--------	--------	--------
24	14	4.0	3.6	6.4	3.0	2.3	2.3	6.0	4.0	4.7
1,066	524	126.1	83.9	78.5	114.7	99.9	118.7	113.3	177.3	175.7
113	79	19.8	20.1	11.3	20.3	22.0	21.1	17.9	18.8	26.5
360	138	55.5	53.5	34.9	65.3	65.0	54.4	46.6	59.9	46.3
207	93	37.9	44.3	44.4	39.0	38.0	37.5	39.3	34.4	31.2
97	57	18.2	16.5	13.6	17.9	17.1	18.3	23.9	16.1	19.1
460	260	77.4	142.6	68.9	56.1	68.2	83.5	82.5	76.5	87.2
837	327	145.1	163.1	136.5	168.4	166.2	172.2	114.4	139.2	109.6
400	213	77.4	71.0	109.3	92.6	73.2	70.4	70.5	66.5	71.4
171	69	27.5	25.7	24.9	30.8	29.1	26.3	26.1	28.5	23.1
153	100	29.5	19.6	24.0	27.3	32.4	27.7	38.3	25.5	33.5
54	25	7.8	9.3	8.6	5.1	6.8	9.9	8.2	9.0	8.4
310	143	52.6	54.0	50.8	57.0	51.1	46.9	54.8	51.6	47.9
390	164	57.4	49.9	39.5	60.1	65.9	63.8	48.5	64.9	55.0
56	34	10.8	8.8	11.8	12.1	9.9	8.0	12.9	9.3	11.4
213	114	35.4	25.7	22.7	37.4	42.7	31.0	36.3	35.4	38.2
121	55	24.2	19.0	22.2	32.3	26.5	26.8	22.4	20.1	18.4
382	242	82.1	73.6	127.0	74.0	83.7	79.3	97.1	63.6	81.1
355	182	63.1	82.9	90.7	48.7	56.3	53.0	76.0	59.1	61.0

From the proportions per 1,000 total deaths shown for minor geographic divisions it appears that the high proportions for typhoid fever noted for Northern California each year and for Central California in 1908 were confined in both cases to the interior counties. The proportions for typhoid fever were very high each year for the interior counties of both Northern and Central California as well as for the counties of Southern California other than Los Angeles. As compared with State averages of 14.9 and 17.3 in 1909 and 1908, respectively, the proportions per 1,000 total deaths were no less than 25.5 and 26.4 for the interior counties of Central California; 24.1 and 25.4 for the interior counties of Northern California; and 19.4 and 19.8 for Southern California except Los Angeles.

The proportions for diphtheria and croup were above the State averages of 8.0 and 12.5 in 1909 and 1908, respectively, for the interior counties of Northern California, 15.7 and 14.1; for the interior counties of Central California, 8.7 and 15.8; and for San Francisco, 8.3 and 12.9. The proportion was also above the State average in 1909 alone for the group of other bay counties, 8.8, and was above the State average in 1908 alone likewise for the coast counties of Central California, 12.7.

The coast counties of Northern California have very high proportions for diseases of the nervous system other than meningitis, 178.3 and 142.6 in 1909 and 1908 against State averages of only 80.0 and 74.4. This is accounted for by the fact that many of the deaths reported for this geographic division occurred at the Mendocino and Napa State Hospitals. The proportions for diseases of the nervous system are also quite high for the counties south of Tehachapi except Los Angeles (99.4 and 87.2), and for the coast counties of Central California (73.8 and 83.5), the former division including the Southern California State Hospital and the latter the Agnews State Hospital.

The interior counties of Northern California show proportions that are very high indeed, 137.2 and 127.0 against State averages of only 82.7 and 82.1, for miscellaneous deaths from violence, as drowning, railroad injuries, other accidents, etc.

The proportions for diseases of the circulatory system (160.3 and 145.1 for the State in 1909 and 1908) are particularly high for San Francisco (189.6 and 168.4), for the other bay counties (184.8 and 166.2), and for the adjoining coast counties (190.6 and 172.2).

The proportions for pneumonia and broncho-pneumonia (67.2 for the State in 1909 and 77.4 in 1908) are especially high for San Francisco (74.6 and 92.6) and for the other bay counties (74.2 and 73.2), as well as for the interior counties of Northern California (76.7 and 109.3).

The proportions of all deaths from diarrhea and enteritis among children under 2 years of age, 31.2 in 1909 and 29.5 in 1908 for the State, were notably high for the bay counties other than San Francisco, 36.8 and 32.4; for the interior counties of Central California, 37.3 and 38.3; and for the counties south of Tehachapi other than Los Angeles, 42.7 and 33.5.

In San Francisco the proportions per 1,000 total deaths for cancer were no less than 79.7 in 1909 and 65.3 in 1908 against State averages of 62.8 and 55.5, respectively. Similarly, the proportions for suicide were as great as 35.6 and 32.3 for San Francisco as compared with 22.7 and 24.2 for the State as a whole.

The proportions for tuberculosis of the lungs, 131.0 in 1909 and 126.1 in 1908 for the State, were no less than 177.3 each year for Los Angeles and as great as 172.9 in 1909 and 175.7 in 1908 for the other counties south of Tehachapi. Similarly, against a State average of 19.8 each year for tuberculosis of other organs, the proportions per 1,000 total deaths were 20.3 in 1909 and 18.8 in 1908 for Los Angeles and 24.9 and 26.5, respectively, for the rest of Southern California.

Urban and Rural Districts.—The table which follows has been prepared to bring out the contrast between mortality conditions in urban and rural districts, figures like those in preceding tables being given here for the metropolitan area, comprising San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), as compared with the rural counties of Northern and Central California:

TABLE 11.—*Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Metropolitan Area and Rural Counties of Northern and Central California: 1909 and 1908.*

CAUSE OF DEATH.	Northern and Central California.		Metropolitan Area.		Rural Counties.	
	1909.	1908.	1909.	1908.	1909.	1908.
DEATHS.						
ALL CAUSES	21,545	22,298	10,258	10,525	11,287	11,768
Typhoid fever	333	398	102	145	231	253
Malarial fever	104	74	11	12	93	62
Smallpox	4	8	--------	5	4	3
Measles	84	77	44	40	40	37
Scarlet fever	47	80	25	23	22	57
Whooping-cough	150	96	107	52	43	44
Diphtheria and croup	190	294	87	134	103	160
Influenza	64	80	10	8	54	72
Plague	1	5	1	5	--------	--------
Other epidemic diseases	79	88	37	29	42	59
Tuberculosis of lungs	2,401	2,355	1,121	1,144	1,280	1,211
Tuberculósis of other organs	406	428	234	221	172	207
Cancer	1,368	1,239	765	686	603	553
Other general diseases	821	886	393	406	428	480
Meningitis	274	417	130	185	144	232
Other diseases of nervous system	1,680	1,702	620	642	1,060	1,060
Diseases of circulatory system	3,650	3,376	1,925	1,763	1,725	1,613
Pneumonia and broncho-pneumonia	1,510	1,808	764	892	746	916
Other diseases of respiratory system	619	621	314	317	305	304
Diarrhea and enteritis, under 2 years	658	669	314	309	344	360
Diarrhea and enteritis, 2 years and over	180	164	73	61	107	103
Other diseases of digestive system	1,119	1,193	518	575	601	618
Bright's disease and nephritis	1,268	1,243	658	657	610	586
Childbirth	222	249	116	118	106	131
Diseases of early infancy	662	781	353	416	309	365
Suicide	539	581	313	315	226	266
Other violence	1,892	1,945	762	820	1,130	1,125
All other causes	1,220	1,436	461	545	759	891
PROPORTION PER 1,000 TOTAL DEATHS.						
ALL CAUSES	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
Typhoid fever	15.5	17.9	10.0	13.8	20.5	21.5
Malarial fever	4.8	3.3	1.1	1.1	8.2	5.3
Smallpox	0.2	0.4	--------	0.5	0.4	0.3
Measles	3.9	3.5	4.3	3.8	3.5	3.2
Scarlet fever	2.2	3.6	2.4	2.2	1.9	4.8
Whooping-cough	7.0	4.3	10.4	4.9	3.8	3.7
Diphtheria and croup	8.8	13.2	8.5	12.7	9.1	13.6
Influenza	3.0	3.6	1.0	0.8	4.8	6.1
Plague	0.1	0.2	0.1	0.5	--------	--------
Other epidemic diseases	3.7	3.9	3.6	2.8	3.7	5.0
Tuberculosis of lungs	111.4	105.6	109.3	108.7	113.4	102.9
Tuberculosis of other organs	18.8	19.2	22.8	21.0	15.2	17.6
Cancer	63.5	55.6	74.6	65.2	53.4	47.0
Other general diseases	38.1	39.7	38.3	38.6	37.9	40.8
Meningitis	12.7	18.7	12.7	17.6	12.8	19.7
Other diseases of nervous system	78.0	76.3	60.4	61.0	93.9	90.1
Diseases of circulatory system	169.4	151.4	187.6	167.5	152.8	137.1
Pneumonia and broncho-pneumonia	70.1	81.1	74.5	84.7	66.1	77.8
Other diseases of respiratory system	28.7	27.9	30.6	30.1	27.0	25.8
Diarrhea and enteritis, under 2 years	30.5	30.0	30.6	29.4	30.5	30.6
Diarrhea and enteritis, 2 years and over	8.4	7.4	7.1	5.8	9.5	8.8
Other diseases of digestive system	51.9	53.5	50.5	54.6	53.3	52.5
Bright's disease and nephritis	58.9	55.8	64.2	62.4	54.1	49.8
Childbirth	10.3	11.2	11.3	11.2	9.4	11.1
Diseases of early infancy	30.7	35.0	34.4	39.5	27.4	31.0
Suicide	25.0	26.1	30.5	29.9	20.0	22.6
Other violence	87.8	87.2	74.3	77.9	100.1	95.6
All other causes	56.6	64.4	44.9	51.8	67.3	75.7

There were not far from the same number of deaths each year in the metropolitan area as in all the other counties north of Tehachapi, the totals being, respectively, 10,258 and 11,287 in 1909 and 10,525 and 11,768 in 1908. However, there are marked differences between the whole urban area and the rural districts in the distribution of deaths by main causes.

The proportion per 1,000 total deaths for typhoid fever was only 10.0 in 1909 and 13.8 in 1908 for the metropolitan area as compared with 20.5 and 21.5 for the rural counties. Similarly, the proportions for diphtheria and croup were 8.5 and 12.7 for the urban territory against 9.1 and 13.6 for the country districts. The proportions for malarial fever were very much less for the metropolitan area, 1.1 each year, than for the rural counties, 8.2 in 1909 and 5.3 in 1908.

On the other hand, the proportions for whooping-cough were considerably larger for the the urban territory, 10.4 in 1909 and 4.9 in 1908, than for the country districts, 3.8 and 3.7, respectively. The proportions for measles were also somewhat greater for the metropolitan area, 4.3 and 3.8, than for the rural counties, 3.5 and 3.2.

The proportion of deaths from diseases of the circulatory system (heart disease, etc.) is very much higher for the urban territory than for the country districts, the proportions per 1,000 total deaths for the former in 1909 and 1908 being as great as 187.6 and 167.5 against only 152.8 and 137.1 for the latter. The proportions for Bright's disease and nephritis, which often occur with heart disease, were also higher each year for the metropolitan area (64.2 and 62.4) than for the rural counties (54.1 and 49.8).

Other important cases in which the proportions per 1,000 total deaths were higher in both 1909 and 1908 for the urban territory than for the country districts are as follows: Cancer, 74.6 and 65.2 against 53.4 and 47.0; pneumonia and broncho-pneumonia, 74.5 and 84.7 against 66.1 and 77.8; diseases of early infancy (under 3 months), 34.4 and 39.5 against 27.4 and 31.0; and suicide, 30.5 and 29.9 against 20.0 and 22.6.

On the other hand, the proportions were higher in both 1909 and 1908 for the rural counties than for the metropolitan area in the following notable instances: Diseases of the nervous system other than meningitis, 93.9 and 90.1 as compared with 60.4 and 61.0; violence other than suicide (*i. e.* sundry accidents), 100.1 and 95.6 as compared with 74.3 and 77.9; and miscellaneous causes (including "old age"), 67.3 and 75.7 as compared with 44.9 and 51.8.

In short, there are relatively more deaths in the metropolitan area than in the rural counties north of Tehachapi from heart disease, Bright's disease, cancer, pneumonia, infancy, and suicide, as well as from whooping-cough and measles. However, there is a relatively greater mortality in country districts than in the urban territory from diseases of the nervous system, accidental violence, and "old age," as well as from typhoid fever, diphtheria and croup, and malarial fever.

Cities and Rest of State.—A further contrast between mortality conditions in city and country districts is available for 1909 and 1908 by comparing deaths in chartered cities as a class with deaths in all the rest of the State. There were twenty-six freeholders' charter cities in 1909 and twenty-four in 1908, the two additional cities being Palo

Alto, with only 48 deaths, and Richmond, with 92. The following table shows for 1909 and 1908 the number of deaths from certain principal causes, as well as the proportion from each cause per 1,000 total deaths, for chartered cities as a class and for the rest of the State as a whole:

TABLE 12.—*Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Cities and Rest of State: 1909 and 1908.*

CAUSE OF DEATH.	California.		Freeholders' Charter Cities.		Rest of State.	
	1909.	1908.	1909.	1908.	1909.	1908.
DEATHS.						
ALL CAUSES	30,985	31,287	17,472	17,480	13,513	13,807
Typhoid fever	461	540	221	267	240	273
Malarial fever	112	80	31	24	81	56
Smallpox	6	9	2	4	4	5
Measles	119	101	71	54	48	47
Scarlet fever	69	104	47	35	22	69
Whooping-cough	217	149	133	71	84	78
Diphtheria and croup	248	391	129	207	119	184
Influenza	82	125	26	50	56	75
Plague	1	5	--------	3	1	2
Other epidemic diseases	108	126	64	66	44	60
Tuberculosis of lungs	4,061	3,945	2,209	2,243	1,852	1,702
Tuberculosis of other organs	612	620	389	377	223	243
Cancer	1,945	1,737	1,244	1,129	701	608
Other general diseases	1,177	1,186	683	621	494	565
Meningitis	398	571	240	325	158	246
Other diseases of nervous system	2,479	2,422	1,239	1,266	1,240	1,156
Diseases of circulatory system	4,966	4,540	2,907	2,671	2,059	1,869
Pneumonia and broncho-pneumonia	2,081	2,421	1,178	1,371	903	1,050
Other diseases of respiratory system	842	861	511	501	331	360
Diarrhea and enteritis, under 2 years	966	922	491	489	475	433
Diarrhea and enteritis, 2 years and over	270	243	153	138	117	105
Other diseases of digestive system	1,596	1,646	953	989	643	657
Bright's disease and nephritis	1,858	1,797	1,170	1,109	688	688
Childbirth	300	339	172	202	128	137
Diseases of early infancy	998	1,108	619	664	379	444
Suicide	702	757	443	475	259	282
Other violence	2,563	2,569	1,220	1,178	1,343	1,391
All other causes	1,748	1,973	927	951	821	1,022
PROPORTION PER 1,000 TOTAL DEATHS.						
ALL CAUSES	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
Typhoid fever	14.9	17.3	12.7	15.3	17.8	19.8
Malarial fever	3.6	2.6	1.8	1.4	6.0	4.1
Smallpox	0.2	0.3	0.1	0.2	0.3	0.4
Measles	3.8	3.2	4.1	3.1	3.5	3.4
Scarlet fever	2.2	3.3	2.7	2.0	1.6	5.0
Whooping-cough	7.0	4.8	7.6	4.1	6.2	5.6
Diphtheria and croup	8.0	12.5	7.4	11.8	8.8	13.3
Influenza	2.6	4.0	1.5	2.9	4.1	5.4
Plague	*	0.2	--------	0.2	0.1	0.1
Other epidemic diseases	3.5	4.0	3.7	3.8	3.2	4.4
Tuberculosis of lungs	131.0	126.1	126.4	128.3	137.0	123.3
Tuberculosis of other organs	19.8	19.8	22.3	21.6	16.5	17.6
Cancer	62.8	55.5	71.2	64.6	51.9	44.0
Other general diseases	38.0	37.9	39.1	35.5	36.6	40.9
Meningitis	12.8	18.2	13.7	18.6	11.7	17.8
Other diseases of nervous system	80.0	77.4	70.9	72.4	91.8	83.7
Diseases of circulatory system	160.3	145.1	166.4	152.8	152.4	135.4
Pneumonia and broncho-pneumonia	67.2	77.4	67.2	78.4	66.8	76.1
Other diseases of respiratory system	27.2	27.5	29.2	28.6	24.5	26.1
Diarrhea and enteritis, under 2 years	31.2	29.5	28.1	28.0	35.1	31.4
Diarrhea and enteritis, 2 years and over	8.7	7.8	8.8	7.9	8.7	7.6
Other diseases of digestive system	51.5	52.6	54.5	56.6	47.6	47.6
Bright's disease and nephritis	60.0	57.4	67.0	63.4	50.9	49.8
Childbirth	9.7	10.8	9.9	11.5	9.5	9.9
Diseases of early infancy	32.2	35.4	35.4	38.0	28.0	32.2
Suicide	22.7	24.2	25.4	27.2	19.2	20.4
Other violence	82.7	82.1	69.8	67.4	99.4	100.7
All other causes	56.4	63.1	53.1	54.4	60.8	74.0

*Less than one tenth of 1 per thousand.

Of 30,985 deaths in California in 1909, 17,472, or 56.4 per cent, occurred in the twenty-six freeholders' charter cities, and 13,513, or

43.6 per cent, occurred in all the rest of the State. Of the 31,287 deaths in 1908, the number within the twenty-four chartered cities was 17,480, or 55.9 per cent, and the number outside these cities was 13,807, or 44.1 per cent. Each year about five ninths of the deaths in California occurred within chartered cities and about four ninths outside them.

The proportion per 1,000 total deaths for typhoid fever was only 12.7 in 1909 and 15.3 in 1908 for chartered cities as a class against 17.8 and 19.8, respectively, for the rest of the State as a whole. The proportions for diphtheria and croup were likewise less for chartered cities, 7.4 and 11.8, than for the rest of California, 8.8 and 13.3. For malarial fever, moreover, the proportions per 1,000 total deaths were very much less within cities, 1.8 and 1.4, than outside them, 6.0 and 4.1.

Relatively more deaths occur within cities than outside them, however, from diseases of the circulatory system (heart disease, etc.). The proportions per 1,000 total deaths in 1909 and 1908, respectively, were 166.4 and 152.8 for chartered cities as compared with 152.4 and 135.4 for the rest of the State. For Bright's disease and nephritis, often reported with heart disease, the proportions were likewise higher each year within chartered cities, 67.0 and 63.4, than outside them, 50.9 and 49.8.

The proportions per 1,000 total deaths were also higher in 1909 as well as 1908 for chartered cities than for the rest of California in the following important cases: Cancer, 71.2 and 64.6 against 51.9 and 44.4; pneumonia and broncho-pneumonia, 67.2 and 78.4 against 66.8 and 76.1; diseases of the digestive system other than diarrhea and enteritis, 54.5 and 56.6 against 47.6 each year; diseases of early infancy (under 3 months), 35.4 and 38.0 against 28.0 and 32.2; and suicide, 25.4 and 27.2 against 19.2 and 20.4.

On the other hand, the proportions were higher in both 1909 and 1908 outside cities than within them in certain notable instances, as follows: Diseases of the nervous system other than meningitis, 91.8 and 83.7 as compared with 70.9 and 72.4; diarrhea and enteritis (under 2 years), 35.1 and 31.4 as compared with 28.1 and 28.0; violence other than suicide (*i. e.*, various accidental injuries), 99.4 and 100.7 as compared with 69.8 and 67.4; and miscellaneous causes (including "old age"), 60.8 and 74.0 as compared with 53.1 and 54.4.

In other words, there are relatively more deaths within chartered cities than outside them from heart disease, Bright's disease, cancer, pneumonia, digestive ailments (except diarrhea), infancy, and suicide. Mortality is relatively greater outside cities than within them, however, from diseases of the nervous system (except meningitis), accidental injuries, and "old age," as well as from typhoid fever, diphtheria and croup, and malarial fever of the epidemic diseases.

Individual Cities.—Corresponding figures for individual chartered cities appear in Tables 30 and 31, pages 138 to 143. In these tables the cities are arranged in rough geographic order to facilitate comparisons between neighboring cities or between cities in the same portion of the State. These tables, because of their length, are placed with other general tables at the end of the section on deaths, but for convenience in reference the titles are given here as follows:

TABLE 30.—Deaths from Certain Principal Causes, with Proportion per 1000 Total Deaths, for Freeholders' Charter Cities arranged Geographically: 1909.

TABLE 31.—Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Freeholders' Charter Cities arranged Geographically: 1908.

Counties.—Preceding figures for deaths in main and minor geographic divisions in 1909 and 1908 are supplemented by extended tables giving similar figures for the fifty-eight counties in 1909 alone. The counties are arranged in geographic order, by minor geographic divisions, but for the sake of ready reference the counties in each group are listed alphabetically. The grouping of the counties according to geographic location facilitates the analysis of mortality conditions in any minor geographic division by immediate reference to the counties included in the group.

The county table for 1909, like similar tables for chartered cities in 1909 and 1908, appears with other general tables at the end of the section of deaths, the county table being on pages 144 to 149. However, the title of this county table is here given as follows:

TABLE 32.—Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Counties arranged Geographically: 1909.

TUBERCULOSIS IN CALIFORNIA.

The State.—Tuberculosis is the leading single cause of death in California, being the cause of about one seventh of all deaths. Of 30,985 deaths reported to the State Bureau of Vital Statistics for 1909, 4,673, or 15.1 per cent, were from tuberculosis, and of 31,287 deaths reported for 1908, 4,565, or 14.6 per cent, were also from the "great white plague." The totals for all diseases of the circulatory system (heart disease, etc.) were 4,966 and 4,540 in 1909 and 1908, respectively; for diseases of the respiratory system (pneumonia, etc.) only 2,923 and 3,282; for diseases of the nervous system 2,877 and 2,993; and for diseases of the digestive system 2,832 and 2,811.

From tuberculosis of the lungs there were 4,061 deaths in 1909 as compared with 3,945 in 1908, while from tuberculosis of other organs there were 612 deaths in 1909 against 620 in 1908.* Of each 1,000 deaths in California in 1909, 131.0 were from tuberculosis of the lungs and 19.8 from tuberculosis of other organs, or 150.9 from tuberculosis of all organs. In 1908 the proportions were 126.1 for tuberculosis of the lungs and 19.8 for tuberculosis of other organs, or 145.9 for all forms.

For an estimated State population of 2,306,001 in 1909 the death-rate per 100,000 inhabitants is 176.1 for tuberculosis of the lungs and 26.5 for tuberculosis of other organs, or altogether 202.6 for all forms of tuberculosis. Similarly, for an estimated population of 2,215,615 in 1908 the death-rate per 100,000 is 178.1 for pulmonary tuberculosis and 28.0 for other forms, or 206.1 for all kinds. In short, the tuberculosis death-rate per 100,000 was no less than 202.6 for 1909 and 206.1 for 1908.

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*The distribution of deaths from tuberculosis other than pulmonary was as follows:

	1909.	1908.
Tuberculosis of larynx	31	35
Tuberculosis meningitis	227	233
Abdominal tuberculosis	206	181
Pott's disease	32	30
Tuberculous abscess	2	2
White swelling	20	19
Tuberculosis of other organs	26	32
General tuberculosis	68	88
Total	612	620

The general death-rate per 1,000 population was 13.4 for California in 1909 and 14.1 in 1908, the rates being swollen greatly by deaths from tuberculosis. It will be shown that many deaths from tuberculosis in California occur among persons of short residence in the State, who evidently came here when too far gone with the disease to be cured. It is also quite likely that many other cases arising here are directly due to this imported infection.

Geographic Divisions.—Southern California is an especially popular resort for consumptives, and here about one fifth of all deaths are due to tuberculosis. The table which appears below shows the number and per cent of deaths from tuberculosis for the several geographic divisions of the State in both 1909 and 1908.

TABLE 13.—*Number and Per Cent of Deaths from Tuberculosis, for Geographic Divisions: 1909 and 1908.*

GEOGRAPHIC DIVISION.	Deaths.		Tuberculosis.			
			Number.		Per Cent.	
	1909.	1908.	1909.	1908.	1909.	1908.
THE STATE	30,985	31,287	4,673	4,565	15.1	14.6
Northern California	3,946	4,148	452	400	11.5	9.6
Coast counties	1,913	1,943	213	202	11.1	10.4
Interior counties	2,083	2,205	239	198	11.5	9.0
Central California	17,599	18,145	2,355	2,383	13.4	13.1
San Francisco	6,150	6,260	822	845	13.4	13.5
Other bay counties	4,108	4,265	533	520	13.0	12.2
Coast counties	2,167	2,131	309	298	14.3	14.0
Interior counties	5,174	5,489	691	720	13.4	13.1
Southern California	9,440	8,994	1,866	1,782	19.8	19.8
Los Angeles	6,392	6,011	1,263	1,179	19.8	19.6
Other counties	3,048	2,983	603	603	19.8	20.2
Northern and Central California	21,545	22,293	2,807	2,783	13.0	12.5
Coast counties	14,388	14,599	1,877	1,865	13.1	12.8
Interior counties	7,207	7,694	930	918	12.9	11.9
Metropolitan area	10,258	10,525	1,355	1,365	13.2	13.0
Rural counties	11,287	11,768	1,452	1,418	12.9	12.0

This table shows that in Southern California each year 19.8 per cent, or about one fifth, of all deaths were from tuberculosis. For Los Angeles County the per cents were 19.8 and 19.6 in 1909 and 1908, while for the other counties south of Tehachapi the per cents were respectively 19.8 and 20.2.

North of Tehachapi only about one eighth of the deaths are due to tuberculosis, the per cents for Northern and Central California together being 13.0 in 1909 and 12.5 in 1908. The per cents for 1909 and 1908, respectively, were 13.4 and 13.1 for Central California and 11.5 and 9.6 for Northern California, the prevalence of tuberculosis decreasing more and more toward the north. The per cent was below the State average each year for every main and minor geographic division north of Tehachapi, being lowest of all in 1909 for the coast counties of Northern California, 11.1, and in 1908 for the interior counties of Northern California, only 9.0.

The per cents were somewhat greater for the metropolitan area comprising San Francisco and the other bay counties, 13.2 in 1909 and 13.0 in 1908, than for the rural counties north of Tehachapi, 12.9 and 12.0, respectively. The per cents were also greater for the metropolis proper, 13.4 and 13.5, than for the suburban counties, 13.0 and 12.2.

Cities.—The following table gives the number and per cent of deaths from tuberculosis in 1909 and 1908 for chartered cities in contrast with the rest of the State, as well as for the individual cities:

TABLE 14.—*Number and Per Cent of Deaths from Tuberculosis, for Individual Cities and Rest of State: 1909 and 1908.*

CITY.	Deaths.		Tuberculosis.			
			Number.		Per Cent.	
	1909.	1908.	1909.	1908.	1909.	1908.
CALIFORNIA	30,985	31,287	4,673	4,565	15.1	14.6
Freeholders' charter cities	17,472*	17,480†	2,598*	2,620†	14.9*	15.0†
Northern California.						
Eureka	180	198	14	25	7.8	12.6
Napa	70	77	5	8	7.1	10.4
Santa Rosa	105	107	13	12	12.4	11.2
Grass Valley	58	88	9	8	15.5	9.1
Central California.						
San Francisco	6,150	6,260	822	845	13.4	13.5
Alameda	309	345	34	30	11.0	8.7
Berkeley	405	448	44	49	10.9	10.9
Oakland	1,642	1,646	215	195	13.1	11.8
Richmond	92	--------	8	--------	8.7	--------
Salinas	68	63	10	8	14.7	12.7
Palo Alto	48	--------	6	--------	12.5	--------
San Jose	386	389	55	58	14.2	14.9
Santa Cruz	190	167	27	17	14.2	10.2
Watsonville	103	103	13	18	12.6	17.5
Fresno	288	365	32	61	11.1	16.7
Sacramento	698	755	89	89	12.8	11.9
Stockton	455	481	75	80	16.5	16.6
Vallejo	172	192	21	19	12.2	9.9
Southern California.						
Los Angeles	4,013	3,752	741	700	18.5	18.7
Long Beach	235	219	19	18	8.1	8.2
Pasadena	410	373	101	113	24.6	30.3
Santa Monica	103	110	14	9	13.6	8.2
Riverside	238	204	51	43	21.4	21.1
San Bernardino	250	262	66	69	26.4	26.3
San Diego	601	701	93	125	15.5	17.8
Santa Barbara	203	175	21	21	10.3	12.0
Rest of State	13,513	13,807	2,075	1,945	15.4	14.1

*26 Freeholders' charter cities. †24 Freeholders' charter cities.

In the twenty-six freeholders' charter cities in 1909 the deaths from tuberculosis numbered 2,598, or 14.9 per cent of all, and in the twenty-four chartered cities in 1908 the deaths from this disease totaled 2,620, or 15.0 per cent. In the State outside cities the deaths from tuberculosis were 2,075, or 15.4 per cent of all, in 1909 and 1,945, or 14.1 per cent, in 1908.

The number and per cent of deaths from tuberculosis in the whole State were somewhat greater for 1909 (4,673 or 15.1 per cent) than for 1908 (4,565 or 14.6 per cent). This increase in the mortality from tuberculosis was confined to the population outside chartered cities, as the figures for cities as a class were substantially the same each year.

The individual cities in which the per cents of deaths from tuberculosis were above the city averages of 14.9 and 15.0 for 1909 and 1908, respectively, were as follows: San Bernardino, 26.4 and 26.3; Pasadena, 24.6 and 30.3; Riverside, 21.4 and 21.1; Los Angeles, 18.5 and

18.7; Stockton, 16.5 and 16.6, and San Diego, 15.5 and 17.8. In 1909 alone, the per cent was also above the city average for Grass Valley. 15.5, and in 1908 alone, the per cents were likewise above the city average for Watsonville, 17.5, and for Fresno, 16.7.

Length of Residence (Geographic Divisions).—The heavy mortality from tuberculosis in California is due largely to the immigration of people so badly afflicted with this disease that they can not recover, even under the most favorable climatic conditions, though they may lengthen their lives somewhat by coming to this land of sunshine. For it appears that many who died of tuberculosis in California had been residents of the Golden State for only a short time. This is shown for the several geographic divisions in 1909 and 1908 in the following table, giving numbers and per cents by length of residence:

TABLE 15.—*Deaths from Tuberculosis classified by Length of Residence in California, for Geographic Divisions: 1909 and 1908.*

GEOGRAPHIC DIVISION.	Total.	Length of Residence.					Per Cent.				
		Under 1 Year.	1 to 9 Years.	10 Years and Over.	Life.	Unknown.	Under 1 Year.	1 to 9 Years.	10 Years and Over.	Life.	Unknown.
1909.											
THE STATE	4,673	385	1,096	1,151	1,411	630	8.2	23.5	24.6	30.2	13.5
Northern California	452	6	43	180	171	52	1.3	9.5	39.8	37.9	11.5
Coast counties	213	2	21	85	88	17	0.9	9.9	39.9	41.3	8.0
Interior counties	239	4	22	95	83	35	1.7	9.2	39.8	34.7	14.6
Central California	2,355	73	336	602	922	422	3.1	14.3	25.6	39.1	17.9
San Francisco	822	17	58	166	360	221	2.1	7.0	20.2	43.8	26.9
Other bay counties	583	17	85	158	230	48	3.2	15.9	28.7	43.2	9.0
Coast counties	309	9	45	72	153	30	2.9	14.6	23.3	49.5	9.7
Interior counties	691	30	148	211	179	123	4.4	21.4	30.5	25.9	17.8
Southern California	1,866	306	717	369	318	156	16.4	38.4	19.8	17.0	8.4
Los Angeles	1,263	219	487	257	186	114	17.4	38.6	20.3	14.7	9.0
Other counties	603	87	230	112	132	42	14.4	38.1	18.6	21.9	7.0
Northern and Central California	2,807	79	379	782	1,093	474	2.8	13.5	27.9	38.9	16.9
Coast counties	1,877	45	209	476	831	316	2.4	11.1	25.4	44.3	16.8
Interior counties	930	34	170	306	262	158	3.6	18.3	32.9	28.2	17.0
Metropolitan area	1,355	34	143	319	590	269	2.5	10.6	23.5	43.5	19.9
Rural counties	1,452	45	236	463	503	205	3.1	16.3	31.9	34.6	14.1
1908.											
THE STATE	4,565	402	1,006	1,140	1,333	684	8.8	22.0	25.0	29.2	15.0
Northern California	400	12	45	150	145	48	3.0	11.3	37.5	36.2	12.0
Coast counties	202	4	20	76	78	24	2.0	9.9	37.6	38.6	11.9
Interior counties	198	8	25	74	67	24	4.1	12.6	37.4	33.8	12.1
Central California	2,383	82	333	676	908	384	3.4	14.0	28.4	38.1	16.1
San Francisco	845	20	96	204	319	206	2.4	11.4	24.1	37.7	24.4
Other bay counties	520	20	70	166	221	43	3.8	13.5	31.9	42.5	8.3
Coast counties	298	7	42	95	133	21	2.4	14.1	31.9	44.6	7.0
Interior counties	720	35	125	211	235	114	4.9	17.4	29.3	32.6	15.8
Southern California	1,782	308	628	314	280	252	17.3	35.2	17.6	15.7	14.2
Los Angeles	1,179	191	421	197	160	210	16.2	35.7	16.7	13.6	17.8
Other counties	603	117	207	117	120	42	19.4	34.3	19.4	19.9	7.0
Northern and Central California	2,783	94	378	826	1,053	432	3.4	13.6	29.7	37.8	15.5
Coast counties	1,865	51	228	541	751	294	2.7	12.2	29.0	40.3	15.8
Interior counties	918	43	150	285	302	138	4.7	16.3	31.1	32.9	15.0
Metropolitan area	1,365	40	166	370	540	249	2.9	12.2	27.1	39.6	18.2
Rural counties	1,418	54	212	456	513	183	3.8	14.9	32.2	36.2	12.9

This table shows that the per cent of tuberculosis victims in California who were natives of the State. having been here for life, was only 30.2 for 1909 and 29.2 for 1908. The per cent born elsewhere, but who were residents of 10 years' standing, was 24.6 for 1909 and 25.0 for 1908, while the per cents for those who had lived in California only from 1 to 9 years were 23.5 and 22.0 for 1909 and 1908, respectively. In 1909, 8.2 per cent, and in 1908, 8.8 per cent, of all the deaths from tuberculosis were of persons who had been in the State less than a year. The length of residence was unknown for 13.5 per cent of the tuberculosis victims in 1909 and for 15.0 per cent in 1908.

The per cent for natives of the State was 39.1 in 1909 and 38.1 in 1908 for Central California, while the corresponding per cents for Northern California were 37.9 and 36.2, respectively. The per cents were 38.9 and 37.8 for the counties north of Tehachapi, against only 17.0 and 15.7 for those to the south. The per cent of tuberculosis victims born in the State was 43.5 for the metropolitan area in 1909 and 39.6 in 1908 as compared with, respectively, 34.6 and 36.2 for the rural counties north of Tehachapi.

The deaths from tuberculosis among residents of 10 years' standing were 39.8 and 37.5 per cent for Northern California and 25.6 and 28.4 for Central California in 1909 and 1908, respectively. For Northern and Central California together the per cents were 27.9 and 29.7 as compared with only 19.8 and 17.6 for Southern California. North of Tehachapi the per cents in 1909 and 1908, respectively, were 23.5 and 27.1 for the metropolitan area against 31.9 and 32.2 for the rural counties.

In 1909 altogether 31.9 per cent of the deaths occurred among residents of less than 10 years' standing, 23.5 per cent having lived here from 1 to 9 years and 8.2 per cent under 1 year. In 1908, similarly, 22.0 per cent had been here from 1 to 9 years and 8.8 per cent under 1 year, or altogether 30.8 per cent had resided in California less than 10 years.

The per cents for residents of less than 10 years' standing are above the State averages only for Southern California, 54.8 in 1909 and 52.5 in 1908. The per cents were 56.0 and 51.9 for Los Angeles and 52.5 and 53.7 for the other counties south of Tehachapi in 1909 and 1908, respectively. On the other hand, the corresponding per cents were only 16.3 and 17.0 for the counties north of Tehachapi, being 17.4 each year for Central California and 10.8 in 1909 and 14.3 in 1908 for Northern California. The per cent of deaths among persons who had lived in California less than 10 years was 13.1 for the metropolitan area in 1909 and 15.1 in 1908 as compared with, respectively, 19.4 and 18.7 for the rural counties.

It seems, therefore, that in Southern California, where about one fifth of all deaths are from tuberculosis, considerably more than half of these deaths occur among persons who had been in the State less than 10 years when they died. In fact, about one sixth of all tuberculosis victims south of Tehachapi had resided in California less than a year, the per cent being 16.4 for 1909 and 17.3 in 1908. The per cents were 17.4 and 16.2 for Los Angeles and 14.4 and 19.4 for the other counties in 1909 and 1908, respectively.

Length of Residence (*Cities*).—The preceding figures on length of residence for geographic divisions are supplemented by those in the following table for the several chartered cities in contrast with the rest of the State, the cities being arranged according to geographic location:

TABLE 16.—*Deaths from Tuberculosis classified by Length of Residence in California, with Per Cents, for Individual Cities and Rest of State: 1909 and 1908.*

CITY	Total.	Length of Residence					Per Cent.				
		Under 1 Year	1 to 9 Years.	10 Years and Over.	Life.	Unknown.	Under 1 Year.	1 to 9 Yeasr.	10 Years and Over	Life.	Unknown.
1909.											
CALIFORNIA	4,673	385	1,096	1,151	1,411	630	8.2	23.5	24.6	30.2	13.5
26 Freeholders' charter cities	2,598	212	625	628	797	336	8.2	24.0	24.2	30.7	12.9
Northern California.											
Eureka	14	1	1	2	8	2	7.1*	7.1*	14.3*	57.2*	14.3*†
Napa	5	------	2	2	1	------	------	40.0*	40.0*	20.0*	------
Santa Rosa	13	------	1	7	5	------	------	7.7*	53.8*	38.5*	------
Grass Valley	9	------	3	5	------	1	------	33.3*	55.6*	------	11.1*†
Central California.											
San Francisco	822	17	58	166	360	221	2.1	7.0	20.2	43.8	26.9†
Alameda	34	------	3	14	16	1	------	8.8	41.2	47.1	2.9
Berkeley	44	------	8	9	26	1	------	18.2	20.4	59.1	2.3
Oakland	215	7	27	75	87	19	3.2	12.6	34.9	40.5	8.8
Richmond	8	------	4	1	1	2	------	50.0*	12.5*	12.5*	25.0*†
Salinas	10	------	2	2	6	------	------	20.0*	20.0*	60.0*	------
Palo Alto	6	1	1	------	4	------	16.7*	16.6*	------	66.7*	------
San Jose	55	1	14	12	27	1	1.8	25.5	21.8	49.1	1.8
Santa Cruz	27	1	4	6	13	3	3.7	14.8	22.2	48.2	11.1†
Watsonville	13	1	1	7	4	------	7.7*	7.7*	53.8*	30.8*	------
Fresno	32	1	6	11	11	3	3.1	18.7	34.4	34.4	9.4
Sacramento	89	3	19	33	31	3	3.4	21.3	37.1	34.8	3.4
Stockton	75	------	19	31	20	5	------	25.3	41.3	26.7	6.7
Vallejo	21	1	2	4	12	2	4.8*	9.5*	19.1*	57.1*	9.5*
Southern California.											
Los Angeles	741	126	285	169	108	53	17.0	38.5	22.8	14.6	7.1
Long Beach	19	3	9	6	1	------	15.8*	47.4*	31.6*	5.2*	------
Pasadena	101	14	63	16	6	2	13.9	62.4	15.8	5.9	2.0
Santa Monica	14	1	4	7	2	------	7.1*	28.6*	50.0*	14.3*	------
Riverside	51	9	21	6	12	3	17.6	41.2	11.8	23.5	5.9
San Bernardino	66	6	30	10	9	11	9.1	45.5	15.1	13.6	16.7†
San Diego	93	19	35	21	16	2	20.4	37.6	22.6	17.2	2.2
Santa Barbara	21	------	3	6	11	1	------	14.3*	28.5*	52.4*	4.8*
Rest of State	2,075	173	471	523	614	294	8.3	22.7	25.2	29.6	14.2
1908.											
CALIFORNIA	4,565	402	1,006	1,140	1,333	684	8.8	22.0	25.0	29.2	15.0
24 Freeholders' charter cities	2,620	228	586	637	725	444	8.7	22.4	24.3	27.7	16.9
Northern California.											
Eureka	25	1	2	7	14	1	4.0	8.0	28.0	56.0	4.0
Napa	8	1	------	3	2	2	12.5*	-----*	37.5*	25.0*	25.0*†
Santa Rosa	12	------	2	2	7	1	-----*	16.7*	16.7*	58.3*	8.3*
Grass Valley	8	------	------	4	3	1	-----*	-----*	50.0*	37.5*	12.5*†
Central California.											
San Francisco	845	20	96	204	310	206	2.4	11.4	24.1	37.7	24.4†
Alameda	30	3	------	15	11	1	10.0	------	50.0	36.7	3.3
Berkeley	49	3	12	13	20	1	6.1	24.5	26.6	40.8	2.0
Oakland	195	6	27	70	76	16	3.1	13.8	35.9	39.0	8.2
Salinas	8	------	------	1	7	------	-----*	-----*	12.5*	87.5*	----*
San Jose	58	4	8	22	23	1	6.9	13.8	37.9	39.7	1.7
Santa Cruz	17	1	3	7	4	2	5.9*	17.6*	41.2*	23.5*	11.8*†
Watsonville	18	------	2	6	9	1	-----*	11.1*	33.3*	50.0*	5.6*
Fresno	61	1	14	22	20	4	1.6	22.9	36.1	32.8	6.6
Sacramento	89	3	20	26	33	7	3.4	22.5	29.2	37.1	7.8
Stockton	80	1	13	39	18	9	1.2	16.3	48.8	22.5	11.2†
Vallejo	19	2	------	4	11	2	10.5*	-----*	21.1*	57.9*	10.5*†
Southern California.											
Los Angeles	700	93	220	126	97	164	13.3	31.4	18.0	13.9	23.4†
Long Beach	18	7	10	------	1	------	38.9*	55.6*	-----*	5.5*	----*
Pasadena	113	28	59	13	11	2	24.8	52.2	11.5	9.7	1.8
Santa Monica	9	1	4	2	1	1	11.1*	44.5*	22.2*	11.1*	11.1*†
Riverside	43	11	19	5	7	1	25.6	44.2	11.6	16.3	2.3
San Bernardino	69	12	26	14	6	11	17.4	37.7	20.3	8.7	15.9†
San Diego	125	26	46	30	18	5	20.8	36.8	24.0	14.4	4.0
Santa Barbara	21	4	3	2	7	5	19.1*	14.3*	9.5*	33.3*	23.8*†
Rest of State	1,945	174	420	503	608	240	8.9	21.6	25.9	31.3	12.3

*Per cents affected by smallness of base (less than 25).

†Large per cent unknown, due to incompleteness of original certificates.

It appears from this table that the distribution of tuberculosis deaths according to length of residence in California is not far from the same for chartered cities as for all the rest of the State. The per cents for native Californians in 1909 and 1908, respectively, were 30.7 and 27.7 for cities as compared with 29.6 and 31.3 for the rest of the State. For residents of 10 years' standing and over the per cents within cities were 24.2 and 24.3 against 25.2 and 25.9 outside cities, while for residents of less than 10 years' standing the per cents were altogether 32.2 and 31.1 in cities against 31.0 and 30.5 outside them. The length of residence was unknown in 12.9 per cent of the deaths in cities in 1909 and in 16.9 per cent in 1908 as compared with 14.2 and 12.3 per cent, respectively, for the rest of the State.

Several of the cities in Southern California show a large proportion of deaths from tuberculosis among persons who had lived in California a comparatively short time. For residents of less than 10 years' standing the per cents in 1909 and 1908 totaled as much as 76.3 and 77.0 for Pasadena; 58.8 and 69.8 for Riverside; 58.0 and 57.6 for San Diego; 54.6 and 55.1 for San Bernardino; and 55.7 and 44.7 for Los Angeles. Moreover, the per cent of tuberculosis victims who had lived in California less than a year was quite high in cities of Southern California, as follows: San Diego, 20.4 in 1909 and 20.8 in 1908; Riverside, 17.6 and 25.6; Los Angeles, 17.0 and 13.3; Pasadena, 13.9 and 24.8; and San Bernardino, 9.1 and 17.4.

Southern California.—In fact, many who died of tuberculosis in Southern California cities or in the whole territory south of Tehachapi had lived in the State only a few months. This appears clearly from the following table giving numbers and per cents by length of residence in months for Southern California in 1909 and 1908:

TABLE 17.—*Deaths from Tuberculosis Classified by Length of Residence (in Months), with Per Cents, for Southern California: 1909 and 1908.*

GEOGRAPHIC DIVISION.	Length of Residence.									
	Total Under 1 year.		Under 1 Month		1 to 2 Months.		3 to 5 Months.		6 to 11 Months.	
	1909.	1908.	1909.	1908.	1909.	1908.	1909	1908.	1909.	1908.
NUMBERS.										
Southern California	306	308	37	36	93	81	78	96	98	95
Los Angeles	219	191	24	23	66	45	56	58	73	65
Other counties	87	117	13	13	27	36	22	38	25	30
PER CENTS.										
Southern California	16.4	17.3	2.0	2.0	5.0	4.6	4.2	5.4	5.2	5.3
Los Angeles	17.4	16.2	1.9	2.0	5.2	3.8	4.5	4.9	5.8	5.5
Other counties	14.4	19.4	2.2	2.1	4.5	6.0	3.6	6.3	4.1	5.0

The table shows that of all who died of tuberculosis in Southern California in 1909, 2.0 per cent had been in the State less than a month, altogether 7.0 per cent less than three months, and altogether 11.2 per cent less than six months. In 1908, similarly, 2.0 per cent had lived here under a month, altogether 6.6 per cent under three months, and altogether 12.0 per cent under six months. Of all the tuberculosis victims in Los Angeles in 1909, 11.6 per cent, and in 1908 10.7 per cent, had resided in California less than half a year. The corresponding per cents for the other counties south of Tehachapi are 10.3 for 1909 and 14.4 for 1908.

Conclusion.—These figures give only a minimum statement of the extent to which the general death-rate of California is swollen by the deaths of persons who were stricken with tuberculosis elsewhere, and who simply came here in the hope of recovering, or with the expectation of at least lengthening their lives in the glorious climate of the Golden State. The statistics cover only the deaths that occur among these recent residents, in many cases quite soon after their arrival in this land of sunshine. No data are available to tell what proportion of deaths from tuberculosis among native Californians and old-time residents are directly due to imported infection by the presence here of sick people from other places. It is quite evident, however, that the death-rate of California is swollen somewhat by the unhealthfulness, not of this State, but of other states, being increased, in fact, by the wide fame of California as a curative health resort. For the leading single cause of death the State is one which finds most of its victims among newcomers seeking restored health and finding longer, happier life in the balmy atmosphere of California.

DEATHS BY SEX, RACE, NATIVITY, AND AGE PERIODS.

Sex.—The proportion of the sexes among decedents is given in the following table for the several geographic divisions in 1909 and 1908, both numbers and per cents being shown:

TABLE 18.—*Deaths Classified by Sex, with Per Cents, for Geographic Divisions: 1909 and 1908.*

GEOGRAPHIC DIVISION.	Deaths.						Per Cent Male.		Per Cent Female.	
	Total.		Male.		Female.					
	1909.	1908.	1909.	1908.	1909.	1908	1909.	1908.	1909.	1908.
THE STATE	30,985	31,287	19,324	19,469	11,661	11,818	62.4	62.2	37.6	37.8
Northern California	3,946	4,148	2,692	2,785	1,254	1,363	68.2	67.1	31.8	32.9
Coast counties	1,913	1,943	1,225	1,251	688	692	64.0	64.4	36.0	35.6
Interior counties	2,033	2,205	1,467	1,534	566	671	72.2	69.6	27.8	30.4
Central California	17,599	18,145	11,004	11,355	6,595	6,790	62.5	62.6	37.5	37.4
San Francisco	6,150	6,260	3,783	3,914	2,367	2,346	61.5	62.5	38.5	37.5
Other bay counties	4,108	4,265	2,429	2,524	1,679	1,741	59.1	59.2	40.9	40.8
Coast counties	2,167	2,131	1,302	1,294	865	837	60.1	60.7	39.9	39.3
Interior counties	5,174	5,489	3,490	3,623	1,684	1,866	67.5	66.0	32.5	34.0
Southern California	9,440	8,994	5,628	5,329	3,812	3,665	59.6	59.2	40.4	40.8
Los Angeles	6,392	6,011	3,732	3,516	2,660	2,495	58.4	58.5	41.6	41.5
Other counties	3,048	2,983	1,896	1,813	1,152	1,170	62.2	60.8	37.8	39.2
Northern and Central California	21,545	22,293	13,696	14.140	7,849	8,153	63.6	63.4	36.4	36.6
Coast counties	14,338	14,599	8,739	8,983	5,599	5,616	60.9	61.5	39.1	38.5
Interior counties	7,207	7,694	4,957	5,157	2,250	2,537	68.8	67.0	31.2	33.0
Metropolitan area	10,258	10,525	6,212	6,438	4,046	4,087	60.6	61.2	39.4	38.8
Rural counties	11,287	11,768	7,484	7,702	3,803	4,066	66.3	65.4	33.7	34.6

It appears from this table that of the 30,985 persons who died in California in 1909, 19,324, or 62.4 per cent, were male, and 11,661, or 37.6 per cent, were female. Among the 31,287 decedents in 1908, the males were 19,469, or 62.2 per cent, and the females were 11,818, or

37.8 per cent. There was an increase of 0.2 in the per cent male, and a corresponding decrease of 0.2 in the per cent female, among decedents in the State as a whole.

Each year the per cent male was highest for Northern California, 68.2 in 1909 and 67.1 in 1908, and next for Central California, 62.5 and 62.6, the per cents being 63.6 and 63.4 for Northern and Central California together against only 59.6 and 59.2 for Southern California.

The per cents male were highest among minor geographic divisions for the interior counties of Northern California, 72.2 and 69.6; next for the interior counties of Central California, 67.5 and 66.0; and next for the coast counties of Northern California, 64.0 and 64.4. The per cents male were lowest of all each year for Los Angeles, 58.4 in 1909 and 58.5 in 1908.

The per cents male were much less each year for the metropolitan area (60.6 and 61.2) than for the rural counties north of Tehachapi (66.3 and 65.4), but were somewhat greater for San Francisco alone (61.5 and 62.5) than for the group of other bay counties (59.1 and 59.2).

Sex and Cause of Death.—The following table shows for California as a whole in both 1909 and 1908, the deaths from certain principal causes classified by sex, with the per cents male and female:

TABLE 19.—*Deaths from Certain Principal Causes Classified by Sex, with Per Cents, for California: 1909 and 1908.*

CAUSE OF DEATH.	Deaths.						Per Cent Male.		Per Cent Female.	
	Total.		Male.		Female.					
	1909.	1908.	1909.	1908.	1909.	1908.	1909.	1908.	1909.	1908.
ALL CAUSES	30,985	31,287	19,324	19,469	11,661	11,818	62.4	62.2	37.6	37.8
Typhoid fever	461	540	305	348	156	192	66.2	64.4	33.8	35.6
Malarial fever	112	80	78	48	34	32	69.6	60.0	30.4	40.0
Smallpox	6	9	4	5	2	4	66.7	55.6	33.3	44.4
Measles	119	101	57	58	62	43	47.9	57.4	52.1	42.6
Scarlet fever	69	104	33	59	36	45	47.8	56.7	52.2	43.3
Whooping-cough	217	149	106	69	111	80	48.8	46.3	51.2	53.7
Diphtheria and croup	248	391	130	204	118	187	52.4	52.2	47.6	47.8
Influenza	82	125	42	72	40	53	51.2	57.6	48.8	42.4
Plague	1	5	1	3	--------	2	100.0	60.0	------	40.0
Other epidemic diseases	108	126	80	74	28	52	74.1	58.7	25.9	41.3
Tuberculosis of lungs	4,061	3,945	2,672	2,576	1,389	1,369	65.8	65.3	34.2	34.7
Tuberculosis of other organs	612	620	329	365	283	255	53.8	58.9	46.2	41.1
Cancer	1,945	1,787	948	889	997	898	48.7	48.3	51.3	51.7
Other general diseases	1,177	1,186	717	722	460	464	60.9	60.9	39.1	39.1
Meningitis	398	571	221	352	177	219	55.5	61.6	44.5	38.4
Other diseases of nervous system	2,479	2,422	1,534	1,506	945	916	61.9	62.2	38.1	37.8
Diseases of circulatory system	4,966	4,540	3,202	2,875	1,764	1,665	64.5	63.3	35.5	36.7
Pneumonia and broncho-pneumonia	2,081	2,421	1,263	1,502	818	919	60.7	62.0	39.3	38.0
Other diseases of respiratory system	842	861	493	522	349	339	58.6	60.6	41.4	39.4
Diarrhea and enteritis, under 2 years	966	922	546	506	420	416	56.5	54.9	43.5	45.1
Diarrhea and enteritis, 2 years and over	270	243	144	127	126	116	53.3	52.3	46.7	47.7
Other diseases of digestive system	1,596	1,646	996	996	600	650	62.4	60.5	37.6	39.5
Bright's disease and nephritis	1,858	1,797	1,197	1,094	661	703	64.4	60.9	35.6	39.1
Childbirth	300	339	--------	--------	300	339	-----	------	100.0	100.0
Diseases of early infancy	998	1,108	574	644	424	464	57.5	58.1	42.5	41.9
Suicide	702	757	591	637	111	120	84.2	84.1	15.8	15.9
Other violence	2,563	2,569	2,107	2,142	456	427	82.2	83.4	17.8	16.6
All other causes	1,748	1,973	954	1,124	794	849	54.6	57.0	45.4	43.0

This table shows that in both 1909 and 1908 the per cents male were highest for deaths from the following important causes: Suicide, 84.2 and 84.1; other violence, 82.2 and 83.4; typhoid fever, 66.2 and 64.4; tuberculosis of the lungs, 65.8 and 65.3; and diseases of the circulatory system, 64.5 and 63.3. The per cent male was also above the general average in 1909 alone for deaths from malarial fever, 69.6, and from Bright's disease and nephritis, 64.4.

On the other hand, except of course for deaths from childbirth, the per cent female was notably high each year only for cancer (51.3 and 51.7) and for whooping-cough (51.2 and 53.7). The per cent female was also quite high in 1909 alone for deaths from scarlet fever (52.2) and from measles (52.1). In all other cases the male decedents outnumbered the female, for some diseases greatly.

Race.—The race distribution of persons dying in the several geographic divisions in 1909 and 1908 is given in the following table, together with the per cent white among decedents:

TABLE 20.—*Deaths Classified by Race, with Per Cent White, for Geographic Divisions: 1909 and 1908.*

GEOGRAPHIC DIVISIONS.	Deaths.						Per Cent White.
	Total.	White.	Negro.	Indian.	Chinese.	Japanese.	
1909.							
THE STATE	30,985	29,323	388	130	694	450	94.6
Northern California	3,946	3,706	22	80	114	24	93.9
Coast counties	1,913	1,838	10	35	22	8	96.1
Interior counties	2,033	1,868	12	45	92	16	91.9
Central California	17,599	16,545	195	33	516	310	94.0
San Francisco	6,150	5,873	41	--------	188	48	95.5
Other bay counties	4,108	3,883	72	4	118	31	94.5
Coast counties	2,167	2,045	17	2	37	66	94.4
Interior counties	5,174	4,744	65	27	173	165	91.7
Southern California	9,440	9,072	171	17	64	116	96.1
Los Angeles	6,392	6,117	135	4	45	91	95.7
Other counties	3,048	2,955	36	13	19	25	97.0
Northern and Central California	21,545	20,251	217	113	630	334	94.0
Coast counties	14,338	13,639	140	41	365	153	95.1
Interior counties	7,207	6,612	77	72	265	181	91.7
Metropolitan area	10,258	9,756	113	4	306	79	95.1
Rural counties	11,287	10,495	104	109	324	255	93.0
1908.							
THE STATE	31,287	29,673	360	126	697	431	94.8
Northern California	4,148	3,952	27	66	80	23	95.3
Coast counties	1,948	1,874	3	38	16	12	96.4
Interior counties	2,205	2,078	24	28	64	11	94.2
Central California	18,145	17,075	178	30	549	313	94.1
San Francisco	6,260	5,991	54	--------	157	58	95.7
Other bay counties	4,265	4,004	64	4	155	38	93.9
Coast counties	2,181	2,009	15	4	54	49	94.3
Interior counties	5,489	5,071	45	22	183	168	92.4
Southern California	8,994	8,646	155	30	68	95	96.1
Los Angeles	6,011	5,741	137	6	54	73	95.5
Other counties	2,983	2,905	18	24	14	22	97.4
Northern and Central California	22,293	21,027	205	96	629	336	94.3
Coast counties	14,599	13,878	136	46	382	157	95.1
Interior counties	7,694	7,149	69	50	247	179	92.9
Metropolitan area	10,525	9,995	118	4	312	96	95.0
Rural counties	11,768	11,032	87	92	317	240	93.7

This table shows that in 1909 the white decedents numbered 29,323, or 94.6 per cent of all; the Chinese, 694; the Japanese, 450; the negroes, 388; and the Indians, 130. For 1908 the figures were as follows: White, 29,673, or 94.8 per cent of all; Chinese, 697; Japanese, 431; negro, 360; and Indian, 126.

The per cent white was substantially the same each year, 94.6 in 1909 and 94.8 in 1908, for the State as a whole. The per cent white was 96.1 each year for Southern California, as compared with 94.0 in 1909 and 94.3 in 1908 for Northern and Central California together, the per cents for Central California being, respectively, 94.0 and 94.1 and for Northern California, 93.9 and 95.3.

Among minor geographic divisions, the per cents white were above the State averages (94.6 in 1909 and 94.8 in 1908) in the following cases: Southern California outside Los Angeles, 97.0 and 97.4; coast counties of Northern California, 96.1 and 96.4; Los Angeles, 95.7 and 95.5; and San Francisco, 95.5 and 95.7.

The per cent white was greater each year for the metropolitan area (95.1 and 95.0) than for the rural counties north of Tehachapi (93.0 and 93.7), and was also greater for the metropolis proper (95.5 and 95.7) than for the suburban counties (94.5 and 93.9).

Each year the deaths among Chinese occurred mainly in San Francisco and suburbs and in the interior counties of Central California. The deaths of Japanese occurred mainly in the interior counties of Central California and also in Los Angeles. The number of negro decedents was particularly great only for Los Angeles in both years.

Race and Cause of Death.—The following table shows for California in 1909 and 1908 the deaths from centain principal causes classified by race, as well as the per cent white in each case:

TABLE 21.—*Deaths from Certain Principal Causes Classified by Race, with Per Cent White, for California: 1909 and 1908.*

CAUSE OF DEATH.	Deaths.						Per Cent White.
	Total.	White.	Negro.	Indian.	Chinese.	Japanese.	
1909.							
ALL CAUSES	30,985	29,323	388	130	694	450	94.6
Typhoid fever	461	406	7	2	9	37	88.1
Malarial fever	112	93	3	1	8	7	83.0
Smallpox	6	6					100.0
Measles	119	114	1		4		95.8
Scarlet fever	69	68			1		98.6
Whooping-cough	217	202	3	5	5	2	93.1
Diphtheria and croup	248	239	1		4	4	96.4
Influenza	82	81			1		98.8
Plague	1	1					100.0
Other epidemic diseases	108	94			6	8	87.0
Tuberculosis of lungs	4,061	3,682	92	28	189	70	90.7
Tuberculosis of other organs	612	560	11	3	6	32	91.5
Cancer	1,945	1,893	14	1	31	6	97.3
Other general diseases	1,177	1,126	11	6	29	5	95.7
Meningitis	398	372	3	1	3	19	93.5
Other diseases of nervous system	2,479	2,398	27	5	30	19	96.7
Diseases of circulatory system	4,966	4,798	44	5	108	11	96.6
Pneumonia and broncho-pneumonia	2,081	1,953	32	15	51	30	93.8
Other diseases of respiratory system	842	794	5	2	21	20	94.3
Diarrhea and enteritis, under 2 years	966	910	13	4	11	28	94.2
Diarrhea and enteritis, 2 years and over	270	255	4	1	6	4	94.4
Other diseases of digestive system	1,596	1,527	13	4	30	22	95.6
Bright's disease and nephritis	1,858	1,774	29	4	37	14	95.5
Childbirth	300	280	4	5	2	9	93.3
Diseases of early infancy	998	951	10	3	7	27	95.3
Suicide	702	656	9	4	17	16	93.4
Other violence	2,563	2,425	35	18	43	42	94.6
All other causes	1,748	1,665	17	13	35	18	95.3
1908.							
ALL CAUSES	31,287	29,673	360	126	697	431	94.8
Typhoid fever	540	474	7	4	6	49	87.8
Malarial fever	80	77	2		1		96.3
Smallpox	9	9					100.0
Measles	101	99		2			98.0
Scarlet fever	104	102	1		1		98.1
Whooping-cough	149	145	3		1		97.3
Diphtheria and croup	391	384	5	1		1	98.2
Influenza	125	124	1				99.2
Plague	5	4				1	80.0
Other epidemic diseases	126	112	1		7	6	88.9
Tuberculosis of lungs	3,945	3,589	73	33	193	57	91.0
Tuberculosis of other organs	620	577	11	6	9	17	93.1
Cancer	1,737	1,685	11	1	32	8	97.0
Other general diseases	1,186	1,139	7	5	28	7	96.0
Meningitis	571	524	9	4	4	30	91.8
Other diseases of nervous system	2,422	2,355	21	2	37	7	97.2
Diseases of circulatory system	4,540	4,369	47	9	93	22	96.2
Pneumonia and broncho-pneumonia	2,421	2,304	32	10	50	25	95.2
Other diseases of respiratory system	861	825	5		15	16	95.8
Diarrhea and enteritis, under 2 years	922	872	5	3	11	31	94.6
Diarrhea and enteritis, 2 years and over	243	228	4	1	7	3	93.8
Other diseases of digestive system	1,646	1,545	24	5	37	35	93.9
Bright's disease and nephritis	1,797	1,734	21	2	32	8	96.5
Childbirth	339	330	3	1	1	4	97.3
Diseases of early infancy	1,108	1,054	15	3	8	28	95.1
Suicide	757	703	11	1	18	24	92.9
Other violence	2,569	2,399	26	18	79	47	93.4
All other causes	1,973	1,911	15	15	27	5	96.9

The per cents white were above the general averages of 94.6 and 94.8 in 1909 and 1908 for deaths from the following important causes: Smallpox, 100.0 per cent each year; scarlet fever, 98.6 and 98.1; diphtheria and croup, 96.4 and 98.2; measles, 95.8 and 98.0; cancer, 97.3 and 97.0; diseases of the nervous system other than meningitis, 96.7 and 97.2; diseases of the circulatory system, 96.6 and 96.2; Bright's disease and nephritis, 95.5 and 96.5; and diseases of early infancy, 95.3 and 95.1.

The table shows, however, that the per cents white are very low indeed for typhoid fever, 88.1 in 1909 and 87.8 in 1908, as well as for tuberculosis of the lungs, 90.7 and 91.0, respectively. From further analysis of the figures in the table it appears that the proportion of Caucasians among all dying from typhiod fever is relatively small, because many deaths from this disease occur among the Japanese, and that the proportion of Caucasians among tuberculosis victims is relatively small, because the "great white plague" is especially fatal among Chinese and negroes.

Thus, the per cents Japanese among all dying from typhoid fever were no less than 8.0 in 1909 (37 among 461) and 9.1 in 1908 (49 among 540), while the per cents Japanese among all decedents were only 1.5 and 1.4, respectively. Likewise, the Chinese and negroes are strongly represented among the victims of pulmonary tuberculosis in California, the Chinese who died from tuberculosis of the lungs numbering 189 in 1909 and 193 in 1908, and the negroes numbering, respectively, 92 and 73. While the per cent Chinese was only 2.2 each year among all decedents in California, the per cent Chinese was no less than 4.6 in 1909 and 4.9 in 1908 for deaths from tuberculosis of the lungs. Similarly, while the per cents negro were only 1.3 and 1.2 among all decedents in 1909 and 1908, the per cents negro were as great as 2.3 and 1.9, respectively, among those dying from pulmonary tuberculosis alone.

Nativity of White Decedents.—In further analysis of deaths by race, the nativity of white decedents is worth considering. Accordingly, Table 22, on the following page, has been prepared classifying white decedents as born in California, born in other states, foreign born, or nativity unknown.

TABLE 22.—*White Decedents Classified by Nativity, with Per Cents, for Geographic Divisions: 1909 and 1908.*

GEOGRAPHIC DIVISION.	White Decedents.					Per Cent.			
	Total	Born in California	Born in Other States	Foreign Born	Unknown	Born in California	Born in Other States	Foreign Born	Unknown
1909.									
THE STATE	29,323	8,231	10,763	9,457	872	28.1	36.7	32.2	3.0
Northern California	3,706	1,039	1,396	1,100	171	28.0	37.7	29.7	4.6
Coast counties	1,838	526	670	608	34	28.6	36.5	33.1	1.8
Interior counties	1,868	513	726	492	137	27.5	38.9	26.3	7.3
Central California	16,545	5,269	4,758	6,095	423	31.8	28.8	36.8	2.6
San Francisco	5,873	1,925	1,184	2,628	136	32.8	20.2	44.7	2.3
Other bay counties	3,883	1,295	1,105	1,401	82	33.3	28.5	36.1	2.1
Coast counties	2,045	644	712	662	27	31.5	34.8	32.4	1.3
Interior counties	4,744	1,405	1,757	1,404	178	29.6	37.0	29.6	3.5
Southern California	9,072	1,923	4,609	2,262	278	21.2	50.8	24.9	3.1
Los Angeles	6,117	1,181	3,209	1,549	178	19.3	52.5	25.3	2.9
Other counties	2,955	742	1,400	713	100	25.1	47.4	24.1	3.4
Northern and Central California	20,251	6,308	6,154	7,195	594	31.2	30.4	35.5	2.9
Coast counties	13,639	4,390	3,671	5,299	279	32.2	26.9	38.9	2.0
Interior counties	6,612	1,918	2,483	1,896	315	29.0	37.5	28.7	4.5
Metropolitan area	9,756	3,220	2,289	4,029	218	33.0	23.5	41.3	2.2
Rural counties	10,495	3,088	3,865	3,166	376	29.4	36.8	30.2	3.6
1908.									
THE STATE	29,673	8,575	10,662	9,458	978	28.9	35.9	31.9	3.3
Northern California	3,952	1,079	1,475	1,214	184	27.3	37.3	30.7	4.7
Coast counties	1,874	507	674	637	56	27.0	36.0	34.0	3.0
Interior counties	2,078	572	801	577	128	27.5	38.5	27.8	6.2
Central California	17,075	5,605	4,747	6,215	508	32.8	27.8	36.4	3.0
San Francisco	5,991	2,001	1,136	2,668	186	33.4	19.0	44.5	3.1
Other bay counties	4,004	1,323	1,145	1,416	120	33.0	28.6	35.4	3.0
Coast counties	2,009	635	683	667	24	31.6	34.0	33.2	1.2
Interior counties	5,071	1,646	1,783	1,464	178	32.4	35.2	28.9	3.5
Southern California	8,646	1,891	4,440	2,029	286	21.9	51.3	23.5	3.3
Los Angeles	5,741	1,160	3,013	1,378	190	20.2	52.5	24.0	3.3
Other counties	2,905	731	1,427	651	96	25.2	49.1	22.4	3.3
Northern and Central California	21,027	6,684	6,222	7,429	692	31.8	29.6	35.3	3.3
Coast counties	13,878	4,466	3,638	5,388	386	32.2	26.2	38.8	2.8
Interior counties	7,149	2,218	2,584	2,041	306	31.0	36.1	28.6	4.3
Metropolitan area	9,995	3,324	2,281	4,084	306	33.2	22.8	40.9	3.0
Rural counties	11,032	3,360	3,941	3,345	386	30.5	35.7	30.3	3.5

It appears from this table that of the 29,323 white decedents in 1909. 10,763, or 36.7 per cent, were born elsewhere in the United States than California; 9,457, or 32.2 per cent were foreign born; 8,231, or 28.1 per cent, were born in California; and 872, or 3.0 per cent, were of unknown nativity. Of the 29,673 white decedents in 1908, those born in other states than California were 10,662, or 35.9 per cent; the foreign born were 9,458, or 31.9 per cent; those born in California were 8,575, or 28.9 per cent; and those of unknown nativity were 978, or 3.3 per cent. There was a drop of 0.8 in the per cent born in California (28.1 in 1909 against 28.9 in 1908) and, on the other hand, a rise of 0.8 in the per cent born in other states (36.7 against 35.9). There was also a rise of 0.3 in the per cent foreign born (32.2 against 31.9), as well as a drop of 0.3 in the per cent unknown (3.0 against 3.3).

The proportion of California decedents born in other states is very high for the counties south of Tehachapi, especially Los Angeles, the per cents being 50.8 and 51.3 for Southern California in 1909 and 1908, and no less than 52.5 each year for Los Angeles alone. On the other hand, the per cents born in other states were only 30.4 and 29.6 in 1909 and 1908 for the counties north of Tehachapi, being 37.7 and 37.3 for Northern California and merely 28.8 and 27.8 for Central California. The per cents born elsewhere in the United States than in California were much less for the metropolitan area (23.5 and 22.8) than for the rural counties (36.8 and 35.7), and were also much less for San Francisco alone (20.2 and 19.0) than for the surrounding suburbs (28.5 and 28.6).

The proportion of foreign born decedents is particularly great only in Central California, where the per cent foreign born was 36.8 in 1909 and 36.4 in 1908, the per cents being only 29.7 and 30.7 for Northern California, and 24.9 and 23.5 for Southern California. For Northern and Central California together, the per cents foreign born were 35.5 and 35.3 in 1909 and 1908, being no less than 41.3 and 40.9 for the urban territory as compared with only 30.2 and 30.3 for the rural districts. The per cent of foreign born decedents in San Francisco was as great as 44.7 in 1909 and 44.5 in 1908 against 36.1 and 35.4, respectively, for the group of suburban counties.

The per cent of native Californians among white decedents was greatest each year for Central California, 31.8 in 1909 and 32.8 in 1908, and next for Northern California, 28.0 and 27.3, the per cents being 31.2 and 31.8 for both of these main divisions together in contrast with only 21.2 and 21.9 for Southern California. The per cents born in California were somewhat greater for the metropolitan area, 33.0 and 33.2, than for the rural counties north of Tehachapi, 29.4 and 30.5 in 1909 and 1908, respectively.

Nativity and Cause of Death.—The following table gives numbers and per cent showing the nativity of Caucasians dying from certain principal causes in California in 1909 and 1908:

TABLE 23.—*White Decedents Dying from Certain Principal Causes classified by Nativity, with Per Cents, for California: 1909 and 1908.*

CAUSE OF DEATH.	White Decedents.					Per Cent.			
	Total	Born in California	Born in Other States	Foreign Born	Unknown	Born in California	Born in Other States	Foreign Born	Unknown
1909.									
ALL CAUSES	29,328	8,231	10,768	9,457	872	28.1	36.7	32.2	3.0
Typhoid fever	406	168	128	102	8	41.4	31.5	25.1	2.0
Malarial fever	93	22	42	23	6	23.7	45.2	24.7	6.4
Smallpox	6	2	2	1	1	33.3	33.3	16.7	16.7
Measles	114	98	11	4	1	86.0	9.6	3.5	0.9
Scarlet fever	68	51	11	6	------	75.0	16.2	8.8	----
Whooping-cough	202	191	9	2	------	94.6	4.4	1.0	----
Diphtheria and croup	239	170	52	17	------	71.1	21.8	7.1	----
Influenza	81	5	50	24	2	6.2	61.7	2.9	0.2
Plague	1	1	------	------	------	100.0	----	----	----
Other epidemic diseases	94	23	24	44	3	24.5	25.5	46.8	3.2
Tuberculosis of lungs	3,682	1,024	1,446	1,143	69	27.8	39.3	31.0	1.9
Tuberculosis of other organs	560	307	150	98	5	54.8	26.8	17.5	0.9
Cancer	1,893	174	868	836	15	9.2	45.8	44.2	0.8
Other general diseases	1,126	266	445	372	43	23.6	39.5	33.1	3.8
Meningitis	372	269	66	34	3	72.3	17.8	9.1	0.8
Other diseases of nervous system	2,398	342	1,148	851	57	14.2	47.9	35.5	2.4
Diseases of circulatory system	4,798	368	2,202	2,090	138	7.7	45.9	43.5	2.9
Pneumonia and broncho-pneumonia	1,953	669	611	628	45	34.2	31.3	32.2	2.3
Other diseases of respiratory system	794	205	279	287	23	25.8	35.1	36.2	2.9
Diarrhea and enteritis, under 2 years	910	874	28	8	------	96.0	3.1	0.9	----
Diarrhea and enteritis, 2 years and over	255	98	89	63	5	38.4	34.9	24.7	2.0
Other diseases of digestive system	1,527	358	631	503	35	23.5	41.3	32.9	2.3
Bright's disease and nephritis	1,774	257	821	655	41	14.5	46.3	36.9	2.3
Childbirth	280	111	92	77	------	39.6	32.9	27.5	----
Diseases of early infancy	951	949	2	------	------	99.8	0.2	----	----
Suicide	656	116	210	234	96	17.7	32.0	35.7	14.6
Other violence	2,425	653	671	854	247	26.9	27.7	35.2	10.2
All other causes	1,665	460	675	501	29	27.6	40.5	30.1	1.8
1908.									
ALL CAUSES	29,673	8,575	10,662	9,458	978	28.9	35.9	31.9	3.3
Typhoid fever	474	195	148	126	5	41.1	31.2	26.6	1.1
Malarial fever	77	22	28	24	3	28.6	36.3	31.2	3.9
Smallpox	9	6	2	1	------	66.7	22.2	11.1	----
Measles	99	76	19	4	------	76.8	19.2	4.0	----
Scarlet fever	102	86	11	4	1	84.3	10.8	3.9	1.0
Whooping-cough	145	130	12	3	------	89.6	8.3	2.1	----
Diphtheria and croup	384	295	66	18	5	76.8	17.2	4.7	1.3
Influenza	124	13	56	51	4	10.5	45.2	41.1	3.2
Plague	4	3	1	------	------	75.0	25.0	----	----
Other epidemic diseases	112	32	39	36	5	28.6	34.8	32.1	4.5
Tuberculosis of lungs	3,589	962	1,489	1,105	33	26.8	40.1	30.8	2.3
Tuberculosis of other organs	577	296	159	119	3	51.3	27.6	20.6	0.5
Cancer	1,685	148	759	752	26	8.8	45.1	44.6	1.5
Other general diseases	1,139	286	443	357	53	25.1	38.9	31.3	4.7
Meningitis	524	343	107	63	11	65.5	20.4	12.0	2.1
Other diseases of nervous system	2,355	330	1,137	833	55	14.0	48.3	35.4	2.3
Diseases of circulatory system	4,369	349	1,968	1,912	140	8.0	45.0	43.8	3.2
Pneumonia and broncho-pneumonia	2,304	767	723	739	75	33.3	31.4	32.1	3.2
Other diseases of respiratory system	825	196	293	318	18	23.8	35.5	38.5	2.2
Diarrhea and enteritis, under 2 years	872	841	22	9	------	96.5	2.5	1.0	----
Diarrhea and enteritis, 2 years and over	228	95	64	65	4	41.7	28.1	28.5	1.7
Other diseases of digestive system	1,545	397	584	526	38	25.7	37.8	34.0	2.5
Bright's disease and nephritis	1,734	219	829	630	56	12.6	47.8	36.4	3.2
Childbirth	330	132	108	89	1	40.0	32.7	27.0	0.3
Diseases of early infancy	1,054	1,053	1	------	------	99.9	0.1	----	----
Suicide	703	137	222	243	101	19.5	31.6	34.6	14.3
Other violence	2,399	626	698	843	232	26.1	29.1	35.1	9.7
All other causes	1,911	540	724	588	59	28.2	37.9	30.8	3.1

The per cents born in California were above the general averages of 28.1 in 1909 and 28.9 in 1908 for deaths from the following important causes: Early infancy, 99.8 and 99.9; diarrhea and enteritis, under 2 years, 96.0 and 96.5; whooping-cough, 94.6 and 89.6; measles, 86.0 and 76.8; scarlet fever, 75.0 and 84.3; diphtheria and croup, 71.1 and 76.8; meningitis, 72.3 and 65.5; tuberculosis other than pulmonary, 54.8 and 51.3; typhoid fever, 41.4 and 41.1; childbirth, 39.6 and 40.0; diarrhea and enteritis, 2 years and over, 38.4 and 41.7; and pneumonia and broncho-pneumonia, 34.2 and 33.3.

The per cents born in other states were above the general averages of 36.7 and 35.9 in 1909 and 1908 for deaths from the following notable causes: Diseases of the nervous system other than meningitis, 47.9 and 48.3; Bright's disease and nephritis, 46.3 and 47.8; diseases of the circulatory system, 45.9 and 45.0; cancer, 45.8 and 45.1; malarial fever, 45.2 and 36.3; tuberculosis of the lungs, 39.3 and 40.1; diseases of the digestive system other than diarrhea, 41.3 and 37.8; and general diseases other than tuberculosis and cancer, 39.5 and 38.9.

The per cents foreign born were above the general averages of 32.2 and 31.9 in 1909 and 1908, respectively, for deaths from the following causes: Cancer, 44.2 and 44.6; diseases of the circulatory system, 43.5 and 43.8; diseases of the respiratory system other than pneumonia, 36.2 and 38.5; Bright's disease and nephritis, 36.9 and 36.4; diseases of the nervous system other than meningitis, 35.5 and 35.4; diseases of the digestive system other than diarrhea, 32.9 and 34.0; general diseases other than tuberculosis and cancer, 33.1 and 31.3; and pneumonia and broncho-pneumonia, 32.2 and 32.1.

The per cents of unknown nativity, 3.0 in 1909 and 3.3 in 1908 for all causes, are very high indeed for suicides, 14.6 and 14.3, as well as for deaths from other violence (drowning, accidental injuries, etc.), 10.2 and 9.7, respectively.

Age Periods.—The following table gives for the several geographic divisions in 1909 and 1908 the classification of decedents by selected age periods, representing in a rough way, infancy, childhood, youth, productive ages, and old age:

TABLE 24.—*Deaths classified by Age Periods, for Geographic Divisions: 1909 and 1908.*

GEOGRAPHIC DIVISION.	Deaths.	Under 1 Year.	1 to 4 Years.	5 to 14 Years.	15 to 64 Years.	65 Years and Over.	Age Unknown.
1909.							
THE STATE	30,985	3,480	1,313	928	16,281	8,904	79
Northern California	3,946	334	137	119	1,984	1,347	25
Coast counties	1,913	170	70	60	937	670	6
Interior counties	2,033	164	67	59	1,047	677	19
Central California	17,599	2,096	783	518	9,255	4,910	37
San Francisco	6,150	713	300	137	3,502	1,493	5
Other bay counties	4,108	546	197	128	2,059	1,168	10
Coast counties	2,167	236	75	75	1,012	767	2
Interior counties	5,174	601	211	178	2,682	1,482	20
Southern California	9,440	1,050	393	291	5,042	2,647	17
Los Angeles	6,392	683	217	185	3,458	1,816	3
Other counties	3,048	367	146	106	1,584	831	14
Northern and Central California	21,545	2,430	920	637	11,239	6,257	62
Coast counties	14,338	1,665	642	400	7,510	4,098	23
Interior counties	7,207	765	278	237	3,729	2,159	39
Metropolitan area	10,258	1,259	497	265	5,561	2,661	15
Rural counties	11,287	1,171	423	372	5,678	3,596	47
1908.							
THE STATE	31,287	3,592	1,393	1,082	16,486	8,603	131
Northern California	4,148	337	151	175	2,046	1,401	38
Coast counties	1,943	152	74	75	943	682	17
Interior counties	2,205	185	77	100	1,103	719	21
Central California	18,145	2,268	811	607	9,571	4,822	66
San Francisco	6,260	782	279	185	3,541	1,470	3
Other bay counties	4,265	571	188	140	2,140	1,207	19
Coast counties	2,131	197	90	79	1,029	732	4
Interior counties	5,489	718	254	203	2,861	1,413	40
Southern California	8,994	987	431	300	4,869	2,380	27
Los Angeles	6,011	628	269	193	3,332	1,584	5
Other counties	2,983	359	162	107	1,537	796	22
Northern and Central California	22,293	2,605	962	782	11,617	6,223	104
Coast counties	14,599	1,702	631	479	7,653	4,091	43
Interior counties	7,694	903	331	303	3,964	2,132	61
Metropolitan area	10,525	1,353	467	225	5,681	2,677	22
Rural counties	11,768	1,252	495	457	5,936	3,546	82

This table shows that of the 30,985 deaths in 1909, 16,281 occurred at the productive ages from 15 to 64 years; 8,904 at the period of old age, 65 years and over; 3,480 in infancy, or the first year of life; 1,313 in childhood, 1 to 4 years; 928 in youth, 5 to 14 years; and only 79 were of unknown age. Similarly, of the 31,287 deaths in 1908, 16,486 were at the productive ages; 8,603 in old age; 3,592 in infancy; 1,393 in childhood; 1,082 in youth; and 131 were unknown.

To facilitate comparisons between geographic divisions, the absolute numbers in the preceding table have been reduced to per cents, as follows:

TABLE 25.—*Per Cent Distribution of Deaths, by Age Periods, for Geographic Divisions: 1909 and 1908.*

GEOGRAPHIC DIVISION.	Per Cent of Deaths.											
	Under 1 Year.		1 to 4 Years.		5 to 14 Years		15 to 64 Years.		65 Years and Over.		Age Unknown.	
	1909.	1908	1909.	1908	1909	1908.	1909.	1908.	1909.	1908.	1909.	1908
THE STATE	11.2	11.5	4.2	4.4	3.0	3.5	52.6	52.7	28.7	27.5	0.3	0.4
Northern California	8.5	8.1	3.5	3.7	3.0	4.2	50.3	49.3	34.1	33.8	0.6	0.9
Coast counties	8.9	7.8	3.7	3.8	3.1	3.9	49.0	48.5	35.0	35.1	0.3	0.9
Interior counties	8.1	8.4	3.3	3.5	2.9	4.5	51.5	50.0	33.3	32.6	0.9	1.0
Central California	11.9	12.5	4.5	4.5	2.9	3.3	52.6	52.7	27.9	26.6	0.2	0.4
San Francisco	11.6	12.5	4.9	4.5	2.2	2.9	56.9	56.6	24.3	23.5	0.1	*
Other bay counties	13.3	13.4	4.8	4.4	3.1	3.3	50.1	50.2	28.4	28.3	0.3	0.4
Coast counties	10.9	9.2	3.5	4.2	3.4	3.7	46.7	48.3	35.4	34.4	0.1	0.2
Interior counties	11.6	13.1	4.1	4.6	3.4	3.7	51.8	52.1	28.7	25.8	0.4	0.7
Southern California	11.1	11.0	4.2	4.8	3.1	3.3	53.4	54.1	28.0	26.5	0.2	0.3
Los Angeles	10.7	10.4	3.8	4.5	2.9	3.2	54.1	55.4	28.4	26.4	0.1	0.1
Other counties	12.0	12.0	4.8	5.4	3.5	3.6	52.0	51.5	27.3	26.7	0.4	0.8
Northern and Central California	11.3	11.7	4.3	4.3	2.9	3.5	52.2	52.1	29.0	27.9	0.3	0.5
Coast counties	11.6	11.7	4.5	4.3	2.8	3.3	52.4	52.4	28.6	28.0	0.1	0.3
Interior counties	10.6	11.7	3.9	4.3	3.3	4.0	51.7	51.5	30.0	27.7	0.5	0.8
Metropolitan area	12.3	12.9	4.8	4.4	2.6	3.1	54.2	54.0	25.9	25.4	0.2	0.2
Rural counties	10.4	10.6	3.7	4.2	3.3	3.9	50.3	50.5	31.9	30.1	0.4	0.7

*Less than one tenth of 1 per cent.

The per cent distribution shows that the deaths at the productive ages, from 15 to 64 years, were 52.6 per cent of all in 1909 and 52.7 per cent in 1908; the deaths at the period of old age, 65 years and over, were 28.7 and 27.5, respectively; the deaths in infancy, or the first year of life, 11.2 and 11.5 per cent; the deaths in childhood, 1 to 4 years, 4.2 and 4.4 per cent; the deaths in youth, 5 to 14 years, 3.0 and 3.5 per cent; and the deaths of unknown age were only 0.3 per cent in 1909 and 0.4 per cent in 1908.

The per cents of deaths occurring at the productive ages, from 15 to 64, were above the State averages of 52.6 in 1909 and 52.7 in 1908 only for San Francisco, 56.9 and 56.6, and for Los Angeles, 54.1 and 55.4. The per cents of deaths at the productive ages were 53.4 and 54.1 for the counties south of Tehachapi as compared with 52.2 and 52.1 for those to the north. The per cents were 54.2 and 54.0 for the metropolitan area, but only 50.3 and 50.5 for the rural counties north of Tehachapi, and were no less than 56.9 and 56.6 for San Francisco against only 50.1 and 50.2 for the suburban counties.

The proportion of deaths at the period of old age, 65 years and over, was above the general average for both the coast and interior counties of Northern California and the coast counties of Central California each year, as well as for the group of other bay counties in 1908 alone. The per cents of deaths occurring at 65 years and over (28.7 in 1909 and 27.5 in 1908 for the State) were no less than 34.1 and 33.8 for Northern California, but only 27.9 and 26.6 for Central California and 28.0 and 26.5 for Southern California. The per cents for Northern and Central California together were 29.0 in 1909 and 27.9 in 1908, being only 25.9 and 25.4 for the urban territory against no less than 31.9 and 30.1 for the rural districts. The per cents for San Francisco were only 24.3 and 23.5 as compared with 28.4 and 28.3 for the adjoining suburbs.

The proportion of deaths in infancy, or the first year of life, was particularly high each year only for Central California, especially for San Francisco and the suburban counties, through the proportions were also above the State averages for the interior counties of Central California and for the counties of Southern California other than Los Angeles. While the per cents for the State were 11.2 and 11.5 in 1909 and 1908. the per cents for Central California were 11.9 and 12.5, being 11.6 and 12.5 for San Francisco and no less than 13.3 and 13.4 for the suburbs. The per cent of deaths in the first year of life was 12.3 in 1909 and 12.9 in 1908 for the whole urban territory as compared with only 10.4 and 10.6 for the rural counties north of Tehachapi. However, the per cents were 11.6 and 13.1 in 1909 and 1908 for the interior counties of Central California and the per cent was 12.0 each year for the counties south of Tehachapi except Los Angeles. The proportion of deaths in infancy was lowest each year for Northern California, 8.5 in 1909 and 8.1 in1908.

The proportion of deaths in childhood, 1 to 4 years, as in infancy, is notably great for the metropolitan area. While the per cents for the State were 4.2 and 4.4, the per cents for the metropolitan area were 4.8 and 4.4, being 4.9 and 4.5 for San Francisco and 4.8 and 4.4 for the suburbs. The per cents were also quite high for the counties of Southern California other than Los Angeles, 4.8 and 5.4, as well as for the interior counties of Central California, 4.1 and 4.6. The per cents for the rural counties north of Tehachapi were only 3.7 and 4.2, being only 3.5 and 3.7 for Northern California alone.

No marked variations appear between the several geographic divisions in the proportion of deaths in youth, 5 to 14 years, at which period occurred only 3.0 per cent of all deaths in 1909 and 3.5 per cent in 1908, except that each year the minimum per cents, 2.2 and 2.9, respectively, were those for San Francisco.

Age and Cause of Death.—The tables on the following pages show for California in 1909 and 1908, first, the number of deaths from certain principal causes classified by age periods, and second, the per cent distribution, by age periods, of the deaths from each of these causes.

TABLE 26.—*Deaths from Certain Principal Causes classified by Age Periods, for California: 1909 and 1908.*

CAUSE OF DEATH.	Deaths.	Under 1 Year.	1 to 4 Years.	5 to 14 Years.	15 to 64 Years.	65 Years and Over.	Age Unknown.
1909.							
ALL CAUSES	30,985	3,480	1,818	928	16,281	8,904	79
Typhoid fever	461	3	21	58	364	15	-------
Malarial fever	112	5	8	4	62	33	-------
Smallpox	6	1	-------	-------	5	-------	-------
Measles	119	34	55	20	9	1	-------
Scarlet fever	69	1	18	33	17	-------	-------
Whooping-cough	217	129	77	8	3	-------	-------
Diphtheria and croup	248	6	113	102	26	1	-------
Influenza	82	1	1	-------	23	57	-------
Plague	1	-------	-------	1	-------	-------	-------
Other epidemic diseases	108	12	3	2	64	26	1
Tuberculosis of lungs	4,061	58	50	74	3,587	288	9
Tuberculosis of other organs	612	80	126	69	312	24	1
Cancer	1,945	-------	6	5	1,205	729	-------
Other general diseases	1,177	68	29	57	743	274	6
Meningitis	398	121	108	58	108	13	-------
Other diseases of nervous system	2,479	80	27	33	1,212	1,116	11
Diseases of circulatory system	4,966	5	5	41	2,267	2,642	6
Pneumonia and broncho-pneumonia	2,081	378	170	54	844	632	3
Other diseases of respiratory system	842	135	52	13	233	407	3
Diarrhea and enteritis, under 2 years	966	808	158	-------	-------	-------	-------
Diarrhea and enteritis, 2 years and over	270	-------	78	22	80	90	-------
Other diseases of digestive system	1,596	61	36	74	992	432	1
Bright's disease and nephritis	1,858	20	17	24	1,018	775	4
Childbirth	300	-------	-------	-------	300	-------	-------
Diseases of early infancy	998	998	-------	-------	-------	-------	-------
Suicide	702	-------	-------	1	629	69	3
Other violence	2,563	121	119	167	1,841	291	24
All other causes	1,748	360	36	14	342	989	7
1908.							
ALL CAUSES	31,287	3,592	1,398	1,082	16,486	8,608	131
Typhoid fever	540	1	20	65	438	12	4
Malarial fever	80	6	3	6	48	17	-------
Smallpox	9	4	1	-------	4	-------	-------
Measles	101	22	48	18	11	2	-------
Scarlet fever	104	7	32	49	16	-------	-------
Whooping-cough	149	94	48	4	3	-------	-------
Diphtheria and croup	391	16	172	155	47	1	-------
Influenza	125	7	2	-------	34	82	-------
Plague	5	-------	-------	2	3	-------	-------
Other epidemic diseases	126	12	6	4	66	37	1
Tuberculosis of lungs	3,945	23	34	82	3,524	269	13
Tuberculosis of other organs	620	84	113	67	326	29	1
Cancer	1,737	1	5	4	1,100	624	3
Other general diseases	1,186	63	26	56	789	248	4
Meningitis	571	128	143	102	184	11	3
Other diseases of nervous system	2,422	95	41	31	1,175	1,072	8
Diseases of circulatory system	4,540	3	6	56	2,069	2,390	16
Pneumonia and broncho-pneumonia	2,421	377	208	58	1,104	667	7
Other diseases of respiratory system	861	121	45	20	265	408	2
Diarrhea and enteritis, under 2 years	922	793	129	-------	-------	-------	-------
Diarrhea and enteritis, 2 years and over	243	-------	75	22	71	75	-------
Other diseases of digestive system	1,646	77	63	82	1,021	400	3
Bright's disease and nephritis	1,797	12	9	30	970	769	7
Childbirth	339	-------	-------	-------	339	-------	-------
Diseases of early infancy	1,108	1,108	-------	-------	-------	-------	-------
Suicide	757	-------	-------	4	679	66	8
Other violence	2,569	119	124	144	1,827	321	34
All other causes	1,978	419	40	21	373	1,108	17

TABLE 27.—*Per Cent Distribution, by Age Periods, of Deaths from Certain Principal Causes, for California: 1909 and 1908.*

CAUSE OF DEATH.	Per Cent of Deaths.											
	Under 1 Year.		1 to 4 Years.		5 to 14 Years.		15 to 64 Years.		65 Years and Over.		Age Unknown.	
	1909.	1908.	1909.	1908.	1909.	1908.	1909.	1908.	1909.	1908.	1909.	1908.
ALL CAUSES	11.2	11.5	4.2	4.4	8.0	8.5	52.6	52.7	28.7	27.5	0.3	0.4
Typhoid fever	0.6	0.2	4.6	3.7	12.6	12.0	79.0	81.1	3.2	2.2	-----	0.8
Malarial fever	4.5	7.5	7.1	3.8	8.6	7.5	55.3	60.0	29.5	21.2	-----	-----
Smallpox	16.7	44.5	-----	11.1	-----	-----	83.3	44.4	-----	-----	-----	-----
Measles	28.6	21.8	46.2	47.5	16.8	17.8	7.6	10.9	0.8	2.0	-----	-----
Scarlet fever	1.5	6.7	26.1	30.8	47.8	47.1	24.6	15.4	-----	-----	-----	-----
Whooping-cough	59.4	63.1	35.5	32.2	3.7	2.7	1.4	2.0	-----	-----	-----	-----
Diphtheria and croup	2.4	4.1	45.6	44.0	41.1	39.6	10.5	12.0	0.4	0.3	-----	-----
Influenza	1.2	5.6	1.2	1.6	-----	-----	28.1	27.2	69.5	65.6	-----	-----
Plague	-----	-----	-----	-----	100.0	40.0	-----	60.0	-----	-----	-----	-----
Other epidemic diseases	11.1	9.5	2.8	4.7	1.8	3.2	59.3	52.4	24.1	29.4	0.9	0.8
Tuberculosis of lungs	1.3	0.6	1.3	0.9	1.8	2.1	88.3	89.3	7.1	6.8	0.2	0.3
Tuberculosis of other organs	18.1	13.5	20.6	18.2	11.3	10.8	51.0	52.6	3.9	4.7	0.1	0.2
Cancer	-----	0.1	0.3	0.3	0.2	0.2	62.0	63.3	37.5	35.9	-----	0.2
Other general diseases	5.8	5.3	2.5	2.2	4.8	4.7	63.1	66.5	23.3	20.9	0.5	0.4
Meningitis	30.4	22.4	27.1	25.1	13.3	17.9	25.9	32.2	3.3	1.9	-----	0.5
Other diseases of nervous system	3.2	3.9	1.1	1.7	1.3	1.3	48.9	48.5	45.0	44.3	0.5	0.3
Diseases of circulatory system	0.1	0.1	0.1	0.1	0.8	1.3	45.7	45.6	53.2	52.6	0.1	0.4
Pneumonia and bronchopneumonia	18.2	15.6	8.2	8.6	2.6	2.4	40.5	45.6	30.4	27.5	0.1	0.3
Other diseases of respiratory system	16.0	14.1	6.2	5.2	1.4	2.3	27.7	30.8	48.3	47.4	0.4	0.2
Diarrhea and enteritis, under 2 years	83.6	86.0	16.4	14.0	-----	-----	-----	-----	-----	-----	-----	-----
Diarrhea and enteritis, 2 years and over	-----	-----	28.9	30.9	8.2	9.0	29.6	29.2	33.3	30.9	-----	-----
Other diseases of digestive system	3.8	4.7	2.3	3.8	4.6	5.0	62.1	62.0	27.1	24.3	0.1	0.2
Bright's disease and nephritis	1.1	0.6	0.9	0.5	1.3	1.7	54.8	54.0	41.7	42.8	0.2	0.4
Childbirth	-----	-----	-----	-----	-----	-----	100.0	100.0	-----	-----	-----	-----
Diseases of early infancy	100.0	100.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Suicide	-----	-----	-----	-----	0.2	0.5	89.6	89.7	9.8	8.7	0.4	1.1
Other violence	4.7	4.7	4.7	4.8	6.5	5.6	71.8	71.1	11.4	12.5	0.9	1.3
All other causes	20.6	21.2	2.1	2.0	0.8	1.1	19.5	18.9	56.6	55.9	0.4	0.9

From the table giving the per cent distribution it appears that the per cents of deaths at the productive ages, from 15 to 64 years, were above the general averages of 52.6 and 52.7 for deaths from the following important causes: Childbirth, 100.0 per cent each year; suicide, 89.6 in 1909 and 89.7 in 1908; tuberculosis of the lungs, 88.3 and 89.3; typhoid fever, 79.0 and 81.1; miscellaneous violence, 71.8 and 71.1; general diseases other than tuberculosis and cancer, 63.1 and 66.5; cancer, 62.0 and 63.3; diseases of the digestive system other than diarrhea, 62.1 and 62.0; malarial fever, 55.3 and 60.0; and Bright's disease and nephritis, 54.8 and 54.0.

The per cents of deaths at the period of old age, 65 years and over, were above the general averages for 1909 and 1908, 28.7 and 27.5, for deaths from the following notable causes: Influenza, 69.5 and 65.6; miscellaneous causes, including "old age" or senility, 56.6 and 55.9; diseases of the circulatory system, 53.2 and 52.6; diseases of the respiratory system other than pneumonia, 48.3 and 47.4; diseases of the nervous system other than meningitis, 45.0 and 44.3; Bright's disease and nephritis, 41.7 and 42.8; cancer, 37.5 and 35.9; diarrhea and enteritis, 2 years and over, 33.3 and 30.9; and pneumonia and bronchopneumonia, 30.4 and 27.5.

The per cents of deaths in infancy, or the first year of life, were above the general averages of 11.2 and 11.5 for deaths from the following causes: Early infancy (premature birth, congenital debility, etc.), 100.0 per cent each year; diarrhea and enteritis, under 2 years, 83.6 in 1909 and 86.0 in 1908; whooping-cough, 59.4 and 63.1; meningitis, 30.4 and 22.4; measles, 28.6 and 21.8; pneumonia and broncho-pneumonia, 18.2 and 15.6; other diseases of the respiratory system, 16.0 and 14.1; and tuberculosis other than pulmonary, 13.1 and 13.5.

The per cents of deaths in childhood, 1 to 4 years, were above the general averages of 4.2 and 4.4 in 1909 and 1908 for deaths from the following causes: Measles, 46.2 and 47.5; diphtheria and croup, 45.6 and 44.0; whooping-cough, 35.5 and 32.2; diarrhea and enteritis, 2 years and over, 28.9 and 30.9; meningitis, 27.1 and 25.1; scarlet fever, 26.1 and 30.8; tuberculosis of other organs than the lungs, 20.6 and 18.2; diarrhea and enteritis, under 2 years, 16.4 and 14.0; pneumonia and broncho-pneumonia, 8.2 and 8.6; other diseases of the respiratory system, 6.2 and 5.2; and miscellaneous violence, 4.7 and 4.8.

The per cent of deaths in youth, 5 to 14 years, was above the general averages of 3.0 in 1909 and 3.5 in 1908 for deaths from the following causes: Scarlet fever, 47.8 and 47.1; diphtheria and croup, 41.1 and 39.6; measles, 16.8 and 17.8; meningitis, 13.3 and 17.9; typhoid fever, 12.6 and 12.0; tuberculosis other than pulmonary, 11.3 and 10.8; diarrhea and enteritis, 2 years and over, 8.2 and 9.0; other diseases of the digestive system, 4.6. and 5.0; general diseases other than tuberculosis and cancer, 4.8 and 4.7; and miscellaneous violence (accidental injuries, etc.), 6.5 and 5.6.

The per cents of unknown age, only 0.3 in 1909 and 0.4 in 1908, for all causes, were notably high each year for suicides, 0.4 and 1.1, and for deaths from miscellaneous violence, 0.9 and 1.3, the last including deaths from drowning and from various accidental injuries.

TABLE 28.—*Deaths from each Specified Disease and Class of Diseases, classified by Sex, Race, Nativity, and Age Periods, for California: 1909.*

No.	CAUSE OF DEATH.	Total Deaths	Male	Female	White	Negro	Indian	Chinese	Japanese	White. Born in California	White. Born in Other States	White. Foreign Born	White. Unknown	Under 1 Year	1 to 4 Years	5 to 14 Years	15 to 64 Years	65 Years and Over	Age Unknown
	ALL CAUSES	30,985	19,324	11,661	29,323	388	130	694	450	8,231	10,763	9,457	872	3,480	1,313	928	16,281	8,904	79
	I. GENERAL DISEASES	9,218	5,502	3,716	8565	143	46	293	171	2,502	3,238	2,672	153	393	507	433	6,420	1,448	17
	(A.) Epidemic diseases	1,423	836	587	1,304	15	8	38	58	731	329	223	21	192	296	228	573	133	1
1	Typhoid fever	461	305	156	406	7	2	9	37	168	128	102	8	3	21	58	364	15	----
2	Exanthematic typhus	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
3	Relapsing fever	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
4	Malarial fever	112	78	34	93	3	1	8	7	22	42	23	6	5	8	4	62	33	----
5	Smallpox	6	4	2	6	----	----	----	----	2	2	1	1	1	----	----	5	----	----
6	Measles	119	57	62	114	1	----	4	----	98	11	4	1	34	55	20	9	1	----
7	Scarlet fever	69	33	36	68	----	----	1	----	51	11	6	----	1	18	33	17	----	----
8	Whooping-cough	217	106	111	202	3	5	5	2	191	9	2	----	129	77	8	3	----	----
9	(a) Diphtheria	211	116	95	203	1	----	4	3	143	46	14	----	3	87	94	26	1	----
	(b) Croup	37	14	23	36	----	----	----	1	27	6	3	----	3	26	8	----	----	----
10	Influenza	82	42	40	81	----	----	1	----	5	50	24	2	1	1	----	23	57	----
11	Miliary fever	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
12	Asiatic cholera	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
13	Cholera nostras	3	2	1	3	----	----	----	----	1	1	1	----	----	----	1	1	1	----
14	Dysentery	43	34	9	39	----	----	2	2	6	12	20	1	1	1	1	27	13	----
15	Plague	1	1	----	1	----	----	----	----	1	----	--	----	----	----	1	----	----	----
16	Yellow fever	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
17	Leprosy	3	2	1	2	----	----	1	----	----	----	2	----	----	----	----	1	2	----
18	Erysipelas	51	35	16	49	----	----	2	----	15	11	21	2	10	1	----	29	10	1
19	Other epidemic diseases	8	7	1	1	----	----	1	6	1	----	----	----	1	1	----	6	----	----
	(B.) Other general diseases	7,795	4,666	3,129	7,261	128	38	255	113	1,771	2,909	2,449	132	201	211	205	5,847	1,315	16
*20	Septicemia	54	37	17	50	1	----	3	----	9	18	20	3	----	1	4	32	17	----
21	Glanders and farcy	1	1	----	1	----	----	----	----	----	1	----	----	----	----	----	1	----	----
22	Malignant pustule and charbon	1	1	----	1	----	----	----	----	----	----	1	----	----	----	----	1	----	----
23	Rabies	1	1	----	1	----	----	----	----	----	1	----	----	----	----	----	1	----	----
24	Actinomycosis, trichinosis, etc.	6	3	3	6	----	----	----	----	----	3	3	----	----	----	----	5	1	----
25	Pellagra	1	----	1	1	----	----	----	----	----	1	----	----	----	----	----	1	----	----
†27	Tuberculosis of lungs	4,061	2,672	1,389	3,682	92	28	189	70	1,024	1,446	1,143	69	53	50	74	3,587	288	9
†26	Tuberculosis of larnyx	31	22	9	31	----	----	----	----	9	11	11	----	1	----	----	28	2	----
28	Tuberculous meningitis	227	119	108	212	2	3	1	9	173	29	9	1	57	99	34	37	----	----
29	Abdominal tuberculosis	206	107	99	179	7	----	2	18	68	63	46	2	15	16	15	147	13	----
30	Pott's disease	32	24	8	30	----	----	1	1	13	8	9	----	----	1	8	21	2	----
*31	Tuberculous abscess	2	----	2	2	----	----	----	----	----	1	1	----	----	----	----	2	----	----
32	White swelling	20	13	7	20	----	----	----	----	6	9	5	----	----	----	2	15	3	----
33	Tuberculosis of other organs	26	12	14	23	----	----	1	2	12	5	5	1	3	4	3	12	3	1
34	General tuberculosis	68	32	36	63	2	----	1	2	26	24	12	1	4	6	7	50	1	----

35	Scrofula	4	1	3	3	----	1	----	----	2	1	----	----	----	3	1	----	----	----
36	Syphilis	151	110	41	140	2	1	6	2	76	81	81	9	6	9	----	76	4	----
37	Gonorrhea of the adult	3	2	1	3	----	----	----	----	1	1	1	----	----	----	----	2	1	----
38	Gonorrheal infections of children	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
39	Cancer of mouth	69	65	4	68	----	----	1	----	5	31	32	----	----	----	----	29	40	----
40	Cancer of stomach and liver	796	479	317	773	3	----	16	4	36	334	398	5	----	----	----	491	305	----
41	Cancer of intestines and peritoneum	208	109	99	205	----	----	2	1	22	85	96	2	----	2	1	118	87	----
42	Cancer of genital organs	275	----	275	266	6	----	2	1	49	125	91	1	----	----	----	218	62	----
43	Cancer of breast	147	----	147	143	2	1	1	----	24	76	43		----	----	----	99	48	----
44	Cancer of skin	64	51	13	62	----	----	2	----	3	33	26	----	----	----	----	27	37	----
*45	Cancer of other or unspecified organs	386	244	142	376	3	----	7	----	35	184	150	7	----	4	4	228	150	----
*46	Tumor (noncancerous)	13	7	6	13	----	----	----	----	3	5	4	1	1	1	----	5	6	----
47	Acute articular rheumatism	93	42	51	88	2	----	2	1	34	35	18	1	----	3	26	56	7	1
48	Chronic rheumatism and gout	63	24	39	61	1	----	1	----	7	34	19	1	----	----	----	25	38	----
49	Scurvy	5	1	4	5	----	----	----	----	2	2	1	----	2	----	----	3	----	----
50	Diabetes	308	164	144	302	4	----	2	----	42	135	122	3	----	4	15	173	116	----
51	Exophthalmic goiter	36	6	30	35	1	----	----	----	7	16	12	----	----	----	1	32	3	----
52	Addison's disease	13	7	6	13	----	----	----	----	1	7	5	----	----	----	----	9	4	----
53	Leukemia	51	28	23	50	----	----	1	----	17	16	17	----	----	4	6	34	7	----
*54	Anemia, chlorosis	111	51	60	111	----	----	----	----	19	57	32	3	1	2	4	77	27	----
†56	Alcoholism	205	181	24	197	----	2	4	2	34	68	76	24	1	----	----	167	32	5
57	Lead poisoning	5	5	----	4	----	----	1	----	----	----	4	----	----	----	----	5	----	----
58	Other professional intoxications	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
59	Other chronic poisonings	46	41	5	36	----	1	9	----	9	17	5	5	----	----	----	36	10	----
†55	Other general diseases	6	4	2	5	----	1	----	----	3	1	1	----	1	2	----	2	1	----
	II. DISEASES OF THE NERVOUS SYSTEM	2,877	1,755	1,122	2,770	30	6	33	38	611	1,214	885	60	201	135	86	1,315	1,129	11
*60	Encephalitis	19	11	8	17	----	----	1	1	10	1	6	----	6	4	1	6	2	----
61	Meningitis	398	221	177	372	3	1	3	19	269	66	34	3	121	108	53	103	13	----
62	Locomotor ataxia	72	59	13	72	----	----	----	----	10	39	22	1	----	----	----	53	19	----
63	Other diseases of spinal cord	123	67	56	118	1	----	2	2	16	62	39	1	4	5	----	70	43	1
64	Apoplexy	1,194	697	497	1,165	11	1	13	4	67	604	463	31	3	1	2	482	702	4
65	Softening of brain	69	44	25	69	----	----	----	----	4	34	31	----	----	----	----	23	46	----
*66	Paralysis	328	198	130	318	5	----	4	1	15	176	117	10	1	1	3	71	250	2
67	General paralysis of insane	174	145	29	165	4	----	4	1	26	74	59	6	----	----	----	153	20	1
68	Other forms of mental disease	135	83	52	124	3	2	3	3	26	52	44	2	----	----	1	130	1	3
74	a(pt). Other diseases of brain	111	71	40	106	----	----	2	3	30	36	36	4	1	3	3	91	13	----
69	Epilepsy	101	70	31	100	----	1	----	----	46	35	17	2	----	1	9	85	6	----
*70	Convulsions (nonpuerperal)	3	1	2	3	----	----	----	----	1		1	----	----	----	----	3	----	----
*71	Convulsions of children	63	39	24	60	1	----	----	2	58	2	----	----	57	6	----	----	----	----
72	Tetanus	29	18	11	27	1	----	----	1	18		2	----	5	3	9	11	1	----
73	Chorea	5	1	4	5	----	----	----	----	1	3	1	----	----	----	1	3	1	----
74	b(pt). Other diseases of nervous system	34	17	17	32	----	1	1	----	5	17	10	----	----	1	1	21	11	----
75	Diseases of the eye and its adnexa	3	----	3	2	----	----	----	1	2	----	----	----	2	----	----	1	----	----
76	Diseases of the ear	16	13	3	15	1	----	----	----	7	5	3	----	1	2	3	9	1	----

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No.	CAUSE OF DEATH.	Total Deaths	Male	Female	White	Negro	Indian	Chinese	Japanese	WHITE.				Under 1 Year	1 to 4 Years	5 to 14 Years	15 to 64 Years	65 Years and Over	Age Unknown
										Born in California	Born in Other States	Foreign Born	Unknown						
	III. DISEASES OF THE CIRCULATORY SYSTEM	4,966	3,202	1,764	4,798	44	5	108	11	368	2,202	2,090	138	5	5	41	2,267	2,642	6
77	Pericarditis	42	29	13	38	2	------	2	------	5	12	21	------	------	------	1	25	16	----
78	Endocarditis	39	23	16	37	------	------	1	1	9	14	13	1	------	1	1	33	4	----
79	Heart disease	4,019	2,580	1,439	3,871	37	4	98	9	308	1,754	1,685	124	2	3	34	1,915	2,060	5
80	Angina pectoris	130	79	51	127	2	------	1	------	6	74	45	2	------	------	------	69	61	----
81	Diseases of arteries	614	429	185	606	3	1	4	------	20	297	280	9	------	------	------	147	466	1
82	Embolism and thrombosis	85	43	42	82	------	------	2	1	7	41	32	2	------	------	1	51	33	----
83	Diseases of veins	11	4	7	11	------	------	------	------	4	2	5	------	------	------	2	8	1	----
84	Diseases of lymphatics	4	1	3	4	------	------	------	------	3	1	------	------	1	1	------	2	------	----
*85	Hemorrhages (except of lungs)	22	14	8	22	------	------	------	------	6	7	9	------	2	------	2	17	1	----
86	Other diseases of circulatory system	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	----
	IV. DISEASES OF THE RESPIRATORY SYSTEM	2,923	1,756	1,167	2,747	37	17	72	50	874	890	915	68	513	222	66	1,077	1,039	6
*87	Diseases of nasal fossae	3	2	1	3	------	------	------	------	3	------	------	------	2	------	------	1	------	----
88	(a) Larnygitis	15	7	8	14	------	------	------	1	10	4	------	------	3	8	1	2	1	----
	(b) Other diseases of larnyx	14	9	5	13	------	------	------	1	7	2	4	------	3	3	1	6	1	----
89	Diseases of the thyroid body	7	1	6	7	------	------	------	------	1	6	------	------	------	------	1	4	2	----
90	Acute bronchitis	134	76	58	118	2	------	2	12	113	2	2	1	100	33	------	------	1	----
91	Chronic bronchitis	317	161	156	309	------	1	5	2	12	133	159	5	------	------	4	61	251	1
92	Broncho-pneumonia	451	236	215	428	4	1	5	13	207	102	117	2	139	64	14	90	144	----
93	Pneumonia	1,630	1,027	603	1,525	28	14	46	17	462	509	511	43	239	106	40	754	488	3
94	Pleurisy	85	64	21	76	2	1	5	1	18	29	25	4	1	1	3	58	22	----
*95	Congestion of lungs	111	67	44	100	1	------	7	3	30	43	22	5	24	5	1	27	53	1
96	Gangrene of lungs	12	9	3	11	------	------	1	------	1	3	6	1	------	1	------	11	------	----
97	Asthma	106	66	40	106	------	------	------	------	4	43	55	4	------	------	1	35	69	1
98	Emphysema	7	6	1	7	------	------	------	------	1	3	2	1	------	1	------	4	2	----
*99	(a) Hemorrhage of lungs	11	10	1	10	------	------	1	------	2	2	5	1	------	------	------	9	2	----
	(b) Other diseases of respiratory system	20	15	5	20	------	------	------	------	3	9	7	1	2	------	------	15	3	----
	V. DISEASES OF THE DIGESTIVE SYSTEM	2,832	1,686	1,146	2,692	30	9	47	54	1,330	748	574	40	869	272	96	1,072	522	1
100	Diseases of mouth	4	1	3	4	------	------	------	------	2	1	1	------	2	1	------	------	1	----
101	(a) Tonsilitis	18	6	12	18	------	------	------	------	9	8	1	------	------	5	8	4	1	----
	(b) Diseases of pharynx	6	5	1	6	------	------	------	------	2	3	1	------	1	------	1	3	1	----
102	Diseases of esophagus	3	2	1	3	------	------	------	------	------	2	1	------	------	------	------	------	3	----
103	Ulcer of stomach	121	84	37	115	------	------	4	2	22	47	43	3	------	------	2	89	30	----
104	*(a) Gastritis	117	67	50	111	3	2	------	1	12	61	36	2	1	------	3	45	68	----
	(b) Other diseases of stomach	68	39	29	66	------	1	----	1	12	29	24	1	2	1	4	29	31	1

*100	Dentition†	15	7	8	15	-----	-----	-----	-----	14	1	-----	-----	10	5	-----	-----	-----	-----
105	Diarrhea and enteritis (under 2 years)	966	546	420	910	13	4	11	28	874	28	8	-----	808	158	-----	-----	-----	-----
106	Diarrhea and enteritis (2 years and over)	270	144	126	255	4	1	6	4	98	89	63	5	-----	78	22	80	90	-----
107	Intestinal parasites	1	1	-----	1	-----	-----	-----	-----	-----	1	-----	-----	-----	-----	-----	1	-----	-----
108	(a) Hernia	92	54	38	88	8	-----	1	-----	15	84	86	3	5	1	1	44	41	-----
	(b) Obstruction of intestines	179	101	78	173	1	-----	2	3	64	51	52	6	29	11	6	81	52	-----
109	Other diseases of intestines	59	34	25	56	1	-----	-----	2	11	26	19	-----	3	1	-----	81	24	-----
110	Acute yellow atrophy of liver	1	1	-----	1	-----	-----	-----	-----	-----	1	-----	-----	-----	-----	-----	1	-----	-----
111	Hydatid tumors of liver	1	-----	1	1	-----	-----	-----	-----	-----	-----	1	-----	-----	-----	-----	1	-----	-----
112	Cirrhosis of liver	336	254	82	319	8	-----	12	2	42	124	144	9	-----	-----	2	247	87	-----
113	Biliary calculi	85	13	22	84	-----	-----	1	-----	4	17	13	-----	-----	-----	-----	26	9	-----
114	Other diseases of liver	184	108	76	171	2	1	5	5	85	79	54	3	2	2	8	128	49	-----
115	Diseases of spleen	5	2	3	5	-----	-----	-----	-----	-----	1	4	-----	-----	-----	-----	4	1	-----
116	Peritonitis (nonpuerperal)	110	61	49	107	-----	-----	1	2	29	48	29	1	6	5	7	74	18	-----
†118	Appendicitis	235	152	83	227	-----	-----	4	4	83	95	42	7	-----	4	37	180	14	-----
†117	Other diseases of digestive system	6	4	2	6	-----	-----	-----	-----	2	2	2	-----	-----	-----	-----	4	2	-----
	VI. DISEASES OF THE GENITO-URINARY SYSTEM	2,291	1,405	886	2,198	84	4	40	40	312	1,049	784	48	21	18	27	1,264	955	6
119	Acute nephritis	83	58	25	72	2	-----	4	5	48	17	11	1	18	12	12	86	5	-----
120	Bright's disease	1,775	1,139	636	1,702	27	4	83	9	214	804	644	40	2	5	12	982	770	4
121	Other diseases of kidneys	61	40	21	56	-----	-----	8	2	11	25	19	1	-----	1	1	33	25	1
122	Calculi of urinary tract	7	5	2	7	-----	-----	-----	-----	1	1	5	-----	1	-----	-----	2	4	-----
123	Diseases of bladder	98	84	14	96	1	-----	-----	1	4	55	35	2	-----	-----	-----	33	65	-----
124	Diseases urethra, urinary abscess, etc.	6	5	1	6	-----	-----	-----	-----	1	1	3	1	-----	-----	-----	2	3	1
125	Diseases of prostate	75	74	1	74	1	-----	-----	-----	-----	47	26	1	-----	-----	-----	7	68	-----
126	Nonvenereal diseases of (male) genital organs	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
127	Metritis	4	-----	4	4	-----	-----	-----	-----	1	2	1	-----	-----	-----	-----	4	-----	-----
128	Uterine hemorrhage (nonpuerperal)	4	-----	4	4	-----	-----	-----	-----	-----	3	1	-----	-----	-----	-----	4	-----	-----
129	Uterine tumor (noncancerous)	46	-----	46	45	1	-----	-----	-----	6	29	8	2	-----	-----	-----	42	4	-----
130	Other diseases of uterus	46	-----	46	44	1	-----	-----	1	10	21	13	-----	-----	-----	2	41	8	-----
131	Ovarian tumors	31	-----	31	29	1	-----	-----	1	6	14	9	-----	-----	-----	-----	24	7	-----
132	(a) Diseases of tubes	53	-----	53	52	-----	-----	-----	1	15	28	9	-----	-----	-----	-----	53	-----	-----
	(b) Other diseases of female genital organs	1	-----	1	1	-----	-----	-----	-----	-----	1	-----	-----	-----	-----	-----	1	-----	-----
133	Nonpuerperal diseases of the breast (cancer excepted)	1	-----	1	1	-----	-----	-----	-----	-----	1	-----	-----	-----	-----	-----	-----	1	-----
	VII. CHILDBIRTH	300	-----	300	280	4	5	2	9	111	92	77	-----	-----	-----	-----	300	-----	-----
134	Accidents of pregnancy	67	-----	67	65	-----	-----	-----	2	25	27	18	-----	-----	-----	-----	67	-----	-----
135	Puerperal hemorrhage	20	-----	20	17	-----	-----	1	2	5	4	8	-----	-----	-----	-----	20	-----	-----
136	Other accidents of labor	30	-----	30	28	-----	1	-----	1	8	7	13	-----	-----	-----	-----	30	-----	-----
137	Puerperal septicemia	76	-----	76	72	1	-----	-----	3	26	22	24	-----	-----	-----	-----	76	-----	-----
138	Puerperal convulsions	66	-----	66	61	2	2	-----	1	28	20	13	-----	-----	-----	-----	66	-----	-----
139	Puerperal phlegmasia alba dolens	2	-----	2	2	-----	-----	-----	-----	1	-----	1	-----	-----	-----	-----	2	-----	-----
140	Other puerperal accidents	39	-----	39	35	1	2	1	-----	18	12	5	-----	-----	-----	-----	39	-----	-----
141	Puerperal diseases of the breast	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

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No.	CAUSE OF DEATH.	Total Deaths	Male	Female	White	Negro	Indian	Chinese	Japanese	White. Born in California	White. Born in Other States	White. Foreign Born	White. Unknown	Under 1 Year	1 to 4 Years	5 to 14 Years	15 to 64 Years	65 Years and Over	Age Unknown
	VIII. DISEASES OF THE SKIN	110	76	34	105	3	-	2	-	17	47	40	1	10	-	-	33	67	-
142	Gangrene	70	52	18	67	3	-	-	-	3	37	27	-	1	-	-	11	58	-
143	Carbuncle	11	9	2	11	-	-	-	-	5	3	3	-	1	-	-	6	4	-
*144	Abscess	18	12	6	16	-	-	2	-	3	6	6	1	2	-	-	14	2	-
145	Other diseases of the skin	11	3	8	11	-	-	-	-	6	1	4	-	6	-	-	2	3	-
	IX. DISEASES OF THE LOCOMOTOR SYSTEM	44	30	14	40	-	1	-	3	23	4	13	-	8	11	5	18	2	-
146	Diseases of bones	41	27	14	37	-	1	-	3	22	3	12	-	7	11	5	16	2	-
147	Diseases of joints	2	2	-	2	-	-	-	-	1	1	-	-	1	-	-	1	-	-
*148	Amputation	1	1	-	1	-	-	-	-	-	-	1	-	-	-	-	1	-	-
149	Other diseases of organs of locomotion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	X. MALFORMATIONS	260	135	125	250	1	2	2	5	248	1	1	-	247	11	1	1	-	-
150	(a) Hydrocephalus	31	19	12	31	-	-	-	-	29	1	1	-	22	8	-	1	-	-
	(b) Congenital malformation of heart, cyanosis	188	94	94	180	1	1	2	4	180	-	-	-	184	3	1	-	-	-
	(c) Other congenital malformations	41	22	19	39	-	1	-	1	39	-	-	-	41	-	-	-	-	-
	XI. EARLY INFANCY	998	574	424	951	10	3	7	27	949	2	-	-	998	-	-	-	-	-
151	(a) Premature birth	535	297	238	509	7	1	4	14	509	-	-	-	535	-	-	-	-	-
	*(b) Congenital debility	369	225	144	353	1	1	3	11	352	1	-	-	369	-	-	-	-	-
152	Other diseases of early infancy	78	43	35	77	1	-	-	-	77	-	-	-	78	-	-	-	-	-
153	Lack of care	16	9	7	12	1	1	-	2	11	1	-	-	16	-	-	-	-	-
	XII. OLD AGE	731	399	332	696	6	6	23	-	11	365	304	16	-	-	-	8	722	1
*154	Old age	731	399	332	696	6	6	23	-	11	365	304	16	-	-	-	8	722	1
	XIII. VIOLENCE	3,265	2,698	567	3,081	44	22	60	58	769	881	1,088	343	121	119	168	2,470	360	27
155	Suicide by poison	182	125	57	167	5	-	6	4	36	57	49	25	-	-	-	170	12	-
156	Suicide by asphyxia	59	42	17	58	-	-	-	1	11	21	20	6	-	-	-	53	6	-
157	Suicide by hanging or strangulation	73	68	5	63	1	-	5	4	8	14	33	8	-	-	1	61	11	-
158	Suicide by drowning	29	26	3	27	-	-	2	-	2	8	11	6	-	-	-	27	1	1
159	Suicide by firearms	287	264	23	271	3	2	4	7	50	96	93	32	-	-	-	256	30	1
160	Suicide by cutting instruments	44	41	3	42	-	2	-	-	6	9	18	9	-	-	-	38	6	-
161	Suicide by jumping from high places	7	6	1	7	-	-	-	-	-	2	5	-	-	-	-	4	3	-

162	Suicide by crushing	14	14	------	14	------	------	------	------	------	1	4	9	------	------	------	13	------	1
163	Other suicides	7	5	2	7	------	------	------	------	3	2	1	1	------	------	------	7	------	----
164	Fractures	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	----
165	Dislocations	4	4	------	3	------	------	1	------	------	2	1	------	------	------	------	2	2	----
†167	Burns and scalds	138	64	74	128	4	1	3	2	54	33	35	6	2	33	24	65	14	----
168	Burning by corrosive substances	1	1	------	1	------	------	------	------	------	------	1	------	------	------	------	1	------	----
169	Heat and sunstroke	26	24	2	25	------	------	------	1	7	8	7	3	3	1	2	16	4	----
170	Cold and freezing	21	20	1	19	1	------	1	------	4	4	4	7	------	------	------	15	6	----
171	Lghtning (electricity)	56	56	------	54	------	------	------	2	18	18	13	5	------	------	------	56	------	----
172	Drowning	334	301	33	316	5	4	4	5	93	66	94	63	1	19	33	254	15	12
173	Starvation, privation, etc.	2	2	------	1	------	------	------	1	------	------	------	1	------	------	------	2	------	----
174	Inhalation of poisonous gases	109	87	22	104	3	------	2	------	16	28	47	13	------	3	10	75	17	4
175	Other accidental poisonings	113	58	55	108	1	1	2	1	48	29	26	5	11	25	6	67	4	----
†166	(a) Accidental gunshot wounds	81	76	5	78	------	2	1	------	33	25	18	2	------	2	21	56	2	----
	(b) Injuries by machinery	47	43	4	46	1	------	------	------	15	17	12	2	------	2	2	42	1	----
	(c) Injuries in mines and quarries	72	72	------	72	------	------	------	------	9	11	47	5	------	------	------	69	2	1
	(d) Railroad accidents and injuries	465	427	38	447	3	1	5	9	68	127	171	81	------	10	17	381	56	1
	(e) Injuries by horses and vehicles	219	192	27	210	3	1	3	2	54	91	62	3	------	8	20	159	31	1
	(f) Other accidental traumatisms	532	429	103	514	4	3	5	6	87	172	223	32	4	7	26	363	128	4
176	(a) Suffocation	15	5	10	13	1	------	------	1	12	1	------	------	11	4	------	------	------	----
	(b) Injuries at birth	81	46	35	79	------	------	------	2	79	------	------	------	81	------	------	------	------	----
	(c) Homicide	238	193	45	198	9	5	16	10	53	36	90	19	7	3	6	218	3	1
	(d) Other external violence	9	7	2	9	------	------	------	------	3	3	3	------	1	2	------	5	1	----
	XIV. ILL-DEFINED DISEASES	170	106	64	155	2	4	5	4	106	30	14	5	94	13	5	36	18	4
*177	"Dropsy"	26	14	12	21	1	------	3	1	5	11	5	------	------	------	1	9	16	----
*178	Sudden death	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	----
*179	(a) Heart failure	3	1	2	3	------	------	------	------	1	1	1	------	------	1	1	1	------	----
	(b) Inanition (over 3 months)‡	57	38	19	56	------	1	------	------	49	6	1	------	47	8	------	2	------	----
	(c) Debility (over 3 months)‡	4	1	3	3	------	------	------	1	2	1	------	------	2	------	------	2	------	----
	(d) Marasmus (over 3 months)‡	49	30	19	45	1	------	1	2	42	2	1	------	43	4	2	------	------	----
	(e) Fever	1	1	------	1	------	------	------	------	1	------	------	------	1	------	------	------	------	----
	(f) Other ill-defined diseases	18	9	9	17	------	------	1	------	3	8	4	2	1	------	1	14	1	1
	(g) Unknown	12	12	------	9	------	3	------	------	3	1	2	3	------	------	------	8	1	3

*Indefinite and unsatisfactory title. †Order of titles changed.

‡Deaths reported from this cause, under 3 months of age, are compiled under "congenital debility" 151 (b).

TABLE 29.—*Deaths from each Specified Disease and Class of Diseases, classified by Sex, Race, Nativity, and Age Periods, for California: 1908.*

No	CAUSE OF DEATH.	Total Deaths	Male	Female	White	Negro	Indian	Chinese	Japanese	WHITE.				Under 1 Year	1 to 4 Years	5 to 14 Years	15 to 64 Years	65 Years and Over	Age Unknown.
										Born in California	Born in Other States	Foreign Born	Unknown						
	ALL CAUSES	31,287	19,469	11,818	29,673	360	126	697	431	8,575	10,662	9,458	978	3,592	1,398	1,062	16,486	8,603	131
	I. GENERAL DISEASES	9,118	5,442	3,676	8,520	122	52	278	146	2,550	3,182	2,600	188	340	510	512	6,409	1,321	26
	(A.) Epidemic diseases	1,630	940	690	1,530	20	7	16	57	858	382	267	23	169	332	303	670	151	5
1	Typhoid fever	540	348	192	474	7	4	6	49	195	148	126	5	1	20	65	438	12	4
2	Exanthematic typhus	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
3	Relapsing fever	1	------	1	1	------	------	------	------	1	------	------	------	------	------	------	1	------	------
4	Malarial fever	80	48	32	77	2	------	1	------	22	28	24	3	6	3	6	48	17	------
5	Smallpox	9	5	4	9	------	------	------	------	6	2	1	------	4	1	------	4	------	------
6	Measles	101	58	43	99	------	2	------	------	76	19	4	------	22	48	18	11	2	------
7	Scarlet fever	104	59	45	102	1	------	1	------	86	11	4	1	7	32	49	16	------	------
8	Whooping-cough	149	69	80	145	3	------	1	------	130	12	3	------	94	48	4	3	------	------
9	(a) Diphtheria	332	179	153	325	5	1	------	1	244	60	17	4	5	135	144	47	1	------
	(b) Croup	59	25	34	59	------	------	------	------	51	6	1	1	11	37	11	------	------	------
10	Influenza	125	72	53	124	1	------	------	------	13	56	51	4	7	2	------	84	32	------
11	Miliary fever	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
12	Asiatic cholera	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
13	Cholera nostras	6	4	2	4	------	------	2	------	1	2	------	1	------	------	------	5	1	------
14	Dysentery	34	14	20	33	------	------	------	1	2	13	15	3	------	1	------	19	14	------
15	Plague	5	3	2	4	------	------	------	1	3	1	------	------	------	------	2	3	------	------
16	Yellow fever	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
17	Leprosy	5	3	2	4	------	------	1	------	------	1	2	1	------	------	------	5	------	------
18	Erysipelas	61	39	22	58	------	------	3	------	19	21	18	------	8	2	1	27	22	1
19	Other epidemic diseases	19	14	5	12	1	------	1	5	9	2	1	------	4	3	3	9	------	------
	(B.) Other general diseases	7,488	4,502	2,986	6,990	102	45	262	89	1,692	2,800	2,333	165	171	178	209	5,739	1,170	21
*20	Septicemia	89	39	50	81	2	1	3	2	20	41	19	1	2	4	1	67	14	1
21	Glanders and farcy	1	1	------	1	------	------	------	------	------	------	1	------	------	------	------	1	------	------
22	Malignant pustule and charbon	2	1	1	2	------	------	------	------	------	1	1	------	------	------	------	1	1	------
23	Rabies	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
24	Actinomycosis, trichinosis, etc.	3	1	2	3	------	------	------	------	1	------	2	------	------	------	------	3	------	------
25	Pellagra	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
†27	Tuberculosis of lungs	3,945	2,576	1,369	3,589	73	83	193	57	962	1,439	1,105	83	23	34	82	3,524	269	13
†26	Tuberculosis of larynx	35	25	10	32	1	1	1	------	8	12	12	------	------	------	------	35	------	------
28	Tuberculous meningitis	233	129	104	222	3	2	2	4	165	41	15	1	55	86	41	50	1	------
29	Abdominal tuberculosis	181	106	75	162	2	3	3	11	61	49	51	1	17	15	9	129	11	------
30	Pott's disease	30	20	10	28	1	------	------	1	10	11	7	------	2	------	5	18	4	1
*31	Tuberculous abscess	2	1	1	2	------	------	------	------	------	1	1	------	------	------	------	2	------	------
32	White swelling	19	12	7	18	------	------	1	------	9	6	3	------	------	3	4	12	------	------
33	Tuberculosis of other organs	32	20	12	31	1	------	------	------	11	14	6	------	2	4	4	14	8	------
34	General tuberculosis	88	52	36	82	3	------	2	1	32	25	21	1	8	5	4	66	5	------

35	Scrofula	5	2	3	5	------	------	------	------	5	------	------	------	3	2	------	------	------	----
36	Syphilis	124	82	42	115	1	------	7	1	69	21	21	4	48	5	2	63	5	1
37	Gonorrhea of the adult	3	3	------	3	------	------	------	------	1	------	2	------	------	------	------	3	------	----
38	Gonorrheal infections of children	1	------	1	1	------	------	------	------	1	------	------	------	1	------	------	------	------	----
39	Cancer of mouth	52	47	5	51	------	1	------	------	6	16	29	------	1	------	------	30	21	----
40	Cancer of stomach and liver	741	436	305	711	5	------	18	7	44	299	355	13	------	------	------	445	295	1
41	Cancer of intestines and peritoneum	157	83	74	155	------	------	1	1	12	66	76	1	------	------	------	96	61	----
42	Cancer of genital organs	223	------	223	219	3	------	1	------	30	91	94	4	------	------	------	175	47	1
43	Cancer of breast	126	------	126	121	3	------	2	------	12	73	34	2	------	------	------	98	28	----
44	Cancer of skin	60	45	15	59	------	------	1	------	2	32	25	------	------	------	------	25	35	----
*45	Cancer of other or unspecified organs	378	228	150	369	------	------	9	------	42	182	139	6	------	5	4	231	137	1
*46	Tumor (noncancerous)	23	11	12	22	------	------	1	------	2	10	10	------	------	1	------	15	6	1
47	Acute articular rheumatism	106	57	49	105	------	------	------	1	47	34	22	2	2	3	27	63	10	1
48	Chronic rheumatism and gout	88	43	45	85	1	------	2	------	6	46	30	3	------	------	------	38	50	----
49	Scurvy	3	1	2	3	------	------	------	------	1	------	2	------	------	1	1	1	------	----
50	Diabetes	256	138	118	249	2	------	5	------	35	113	98	3	------	4	15	146	91	----
51	Exophthalmic goiter	31	5	26	31	------	------	------	------	6	13	12	------	------	------	1	26	4	----
52	Addison's disease	10	4	6	10	------	------	------	------	2	4	3	1	------	------	1	8	1	----
53	Leukemia	34	21	13	34	------	------	------	------	10	10	14	------	------	1	4	25	4	----
*54	Anemia, chlorosis	104	51	53	101	1	------	------	2	22	46	32	1	6	4	2	72	20	----
†56	Alcoholism	223	210	23	229	------	3	1	------	41	77	80	31	------	------	------	204	29	----
57	Lead poisoning	4	4	------	4	------	------	------	------	1	3	------	------	------	------	------	3	1	----
58	Other professional intoxications	------	-----	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	----
59	Other chronic poisonings	49	44	5	39	------	1	9	------	11	15	6	7	------	------	------	43	6	----
†55	Other general diseases	17	4	13	16	------	------	------	1	5	4	7	------	1	1	2	7	6	----
	II. DISEASES OF THE NERVOUS SYSTEM	2,993	1,858	1,135	2,879	30	6	41	37	673	1,244	896	66	223	184	133	1,359	1,083	11
*60	Encephalitis	22	10	12	22	------	------	------	------	9	10	2	1	4	2	1	12	3	----
61	Meningitis	571	352	219	524	9	4	4	30	343	107	63	11	128	143	102	184	11	3
62	Locomotor ataxia	77	61	16	76	1	------	------	------	4	40	30	2	------	------	------	55	22	----
63	Other diseases of spinal cord	121	84	37	120	1	------	------	------	14	56	49	1	2	4	1	75	39	----
64	Apoplexy	1,112	669	443	1,079	10	1	20	2	71	555	425	28	5	2	2	482	617	4
65	Softening of brain	67	36	31	67	------	------	------	------	9	32	26	------	------	------	------	18	49	----
*66	Paralysis	393	242	151	378	3	1	10	1	19	212	143	4	1	2	1	113	275	1
67	General paralysis of insane	122	98	24	120	------	------	1	1	15	61	38	6	------	------	------	99	22	1
68	Other forms of mental disease	107	61	46	106	------	------	1	------	18	51	33	4	------	------	------	104	3	----
74	a(pt). Other diseases of brain	122	84	38	119	1	------	1	1	27	43	47	2	------	4	5	95	16	2
69	Epilepsy	86	46	40	84	1	------	1	------	25	38	16	5	------	4	9	64	9	----
*70	Convulsions (nonpuerperal)	6	4	2	6	------	------	------	------	3	3	------	------	------	------	1	4	1	----
*71	Convulsions of children	91	58	33	86	2	------	1	2	83	2	1	------	73	17	------	------	1	----
72	Tetanus	28	20	8	26	------	------	2	------	18	5	3	------	7	1	7	12	1	----
73	Chorea	6	4	2	6	------	------	------	------	1	2	2	1	------	------	1	4	1	----
74	b(pt). Other diseases of nervous system	40	19	21	38	2	------	------	------	4	18	15	1	------	1	1	28	10	----
75	Diseases of the eye and its adnexa	2	1	1	2	------	------	------	------	1	1	------	------	------	1	------	------	1	----
76	Diseases of the ear	20	9	11	20	------	------	------	------	9	8	3	------	3	3	2	10	2	----

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*Indefinite and unsatisfactory title. †Order of titles changed.

TABLE 29.—*Deaths from each Specified Disease and Class of Diseases classified by Sex, Race, Nativity, and Age Periods, for California: 1908*—Continued.

No.	CAUSE OF DEATH.	Total Deaths	Male	Female	White	Negro	Indian	Chinese	Japanese	WHITE.				Under 1 Year	1 to 4 Years	5 to 14 Years	15 to 64 Years	65 Years and Over	Age Unknown
										Born in California	Born in Other States	Foreign Born	Unknown						
	III. DISEASES OF THE CIRCULATORY SYSTEM	4,540	2,875	1,665	4.369	47	9	93	22	349	1.968	1.912	140	3	6	56	2,069	2,390	16
77	Pericarditis	35	27	8	30	1	----	3	1	5	9	11	5	----	1	2	24	7	1
78	Endocarditis	20	12	8	19	----	----	----	1	8	6	5	----	----	----	6	14	----	----
79	Heart disease	3,736	2,354	1,382	3,587	43	7	83	16	283	1,585	1,598	121	2	1	44	1,788	1,888	13
80	Angina pectoris	110	76	34	104	2	----	1	3	3	70	30	1	----	----	----	48	62	----
81	Diseases of arteries	515	335	180	512	----	1	2	----	10	266	226	10	----	----	----	134	379	2
82	Embolism and thrombosis	84	45	39	82	----	----	2	----	25	26	28	3	----	1	----	38	45	----
83	Diseases of veins	12	6	6	10	1	1	----	----	3	----	7	----	----	----	1	8	3	----
84	Diseases of lymphatics	2	1	1	2	----	----	----	----	1	----	1	----	----	----	----	1	1	----
*85	Hemorrhages (except of lungs)	25	19	6	22	----	----	2	1	10	6	6	----	1	3	3	13	5	----
86	Other diseases of circulatory system	1	----	1	1	----	----	----	----	1	----	----	----	----	----	----	1	----	----
	IV. DISEASES OF THE RESPIRATORY SYSTEM	3,282	2,024	1,258	3,129	37	10	65	41	963	1,016	1,057	93	498	258	78	1,369	1,075	9
*87	Diseases of nasal fossae	4	4	----	4	----	----	----	----	4	----	----	----	2	1	1	----	----	----
88	(a) Laryngitis	18	8	10	17	----	----	----	1	12	4	----	1	1	8	2	6	1	----
	(b) Other diseases of larynx	2	----	2	2	----	----	----	----	1	1	----	----	----	----	----	2	----	----
89	Diseases of the thyroid body	3	----	3	3	----	----	----	----	1	1	1	----	----	----	1	2	----	----
90	Acute bronchitis	130	71	59	116	3	----	3	8	111	5	----	----	97	30	2	1	----	----
91	Chronic bronchitis	342	202	140	338	----	----	3	1	14	145	178	1	1	----	6	83	252	----
92	Broncho-pneumonia	482	264	218	467	2	1	5	7	240	113	108	6	159	77	11	89	146	----
93	Pneumonia	1,939	1,238	701	1,837	30	9	45	18	527	610	631	69	218	131	47	1,015	521	7
94	Pleurisy	86	53	33	79	1	----	1	5	13	30	30	6	----	----	4	59	23	----
*95	Congestion of lungs	117	74	43	112	----	----	4	1	31	40	37	4	20	6	8	29	58	1
96	Gangrene of lungs	5	5	----	5	----	----	----	----	2	2	1	----	----	----	----	2	3	----
97	Asthma	92	56	36	88	1	----	3	----	4	40	41	3	----	----	1	36	54	1
98	Emphysema	16	14	2	16	----	----	----	----	----	5	11	----	----	----	----	10	6	----
*99	(a) Hemorrhage of lungs	32	23	9	31	----	----	1	----	2	14	12	3	----	----	----	25	7	----
	(b) Other diseases of respiratory system	14	12	2	14	----	----	----	----	1	6	7	----	----	----	----	10	4	----
	V. DISEASES OF THE DIGESTIVE SYSTEM	2,811	1,629	1,182	2,645	33	9	55	69	1,333	670	600	42	870	267	104	1,092	475	3
100	Diseases of mouth	7	5	2	6	1	----	----	----	6	----	----	----	6	----	----	1	----	----
101	(a) Tonsilitis	26	14	12	26	----	----	----	----	15	9	2	----	1	8	8	8	1	----
	(b) Diseases of pharynx	8	4	4	8	----	----	----	----	2	6	----	----	----	1	1	4	2	----
102	Diseases of esophagus	2	----	2	2	----	----	----	----	1	1	----	----	----	----	----	1	1	----
103	Ulcer of stomach	100	60	40	96	2	----	1	1	22	40	32	2	----	1	3	71	25	----
104	*(a) Gastritis	125	65	60	119	2	1	1	2	12	63	44	----	----	----	2	58	65	----
	(b) Other diseases of stomach	49	34	15	47	----	----	2	----	4	18	23	2	1	1	----	34	13	----

*100	Dentition†	29	16	13	29	------	------	------	------	27	2	------	------	15	14	------	------	------	----
105	Diarrhea and enteritis (under 2 years)	922	506	416	872	5	3	11	31	841	22	9	------	793	129	------	------	------	----
106	Diarrhea and enteritis (2 years and over)	243	127	116	228	4	1	7	3	95	64	65	4	------	75	22	71	75	----
107	Intestinal parasites	1	------	1	1	------	------	------	------	------	1	------	------	------	1	------	------	------	----
108	(a) Hernia	66	41	25	64	1	------	1	------	7	21	34	2	3	------	------	34	29	----
	(b) Obstruction of intestines	193	105	88	175	6	2	6	4	74	55	43	3	40	22	8	71	51	1
109	Other diseases of intestines	64	31	33	57	1	------	3	3	17	19	19	2	8	1	2	37	16	----
110	Acute yellow atrophy of liver	3	2	1	3	------	------	------	------	1	1	1	------	------	------	------	1	2	----
111	Hydatid tumors of liver	1	1	------	1	------	------	------	------	1	------	------	------	------	------	------	1	------	----
112	Cirrhosis of liver	370	252	118	354	7	1	6	2	43	127	171	13	------	------	------	281	89	----
113	Biliary calculi	41	19	22	39	------	------	2	------	3	12	22	2	------	------	1	25	14	1
114	Other diseases of liver	161	93	68	152	------	------	6	3	28	75	46	3	1	4	5	97	54	----
115	Diseases of spleen	6	6	------	6	------	------	------	------	1	1	3	1	------	------	------	4	2	----
116	Peritonitis (nonpuerperal)	146	75	71	131	2	1	5	7	37	53	40	1	2	4	8	109	22	1
†118	Appendicitis	241	168	73	222	2	------	4	13	95	76	44	7	------	6	44	178	13	----
†117	Other diseases of digestive system	7	5	2	7	------	------	------	------	1	4	2	------	------	------	------	6	1	----
	VI. DISEASES OF THE GENITO-URINARY SYSTEM	2,169	1,271	898	2,098	26	2	34	9	270	1,006	754	68	13	9	31	1,179	927	10
119	Acute nephritis	68	33	35	63	1	------	------	4	30	22	10	1	11	8	10	37	2	----
120	Bright's disease	1,729	1,061	668	1,671	20	2	32	4	189	807	620	55	1	1	20	933	767	7
121	Other diseases of kidneys	53	34	19	53	------	------	------	------	6	25	21	1	1	------	------	28	24	----
122	Calculi of urinary tract	4	1	3	4	------	------	------	------	------	3	1	------	------	------	------	2	2	----
123	Diseases of bladder	97	82	15	95	------	------	2	------	1	44	47	3	------	------	------	21	76	----
124	Diseases urethra, urinary abscess, etc.	4	2	2	4	------	------	------	------	1	2	1	------	------	------	------	3	1	----
125	Diseases of prostate	57	57	------	56	1	------	------	------	1	31	22	2	------	------	------	11	45	1
126	Nonvenereal diseases of (male) genital organs	1	1	------	1	------	------	------	------	------	------	------	1	------	------	------	1	------	----
127	Metritis	5	------	5	5	------	------	------	------	1	2	2	------	------	------	------	5	------	----
128	Uterine hemorrhage (nonpuerperal)	6	------	6	6	------	------	------	------	1	4	------	1	------	------	------	5	1	----
129	Uterine tumor (noncancerous)	28	------	28	27	1	------	------	------	7	12	7	1	------	------	------	25	3	----
130	Other diseases of uterus	38	------	38	37	1	------	------	------	10	21	5	1	------	------	1	35	1	1
131	Ovarian tumors	30	------	30	28	2	------	------	------	5	13	10	------	------	------	------	25	5	----
132	(a) Diseases of tubes	48	------	48	47	------	------	------	1	18	19	8	2	------	------	------	47	------	1
	(b) Other diseases of female genital organs	1	------	1	1	------	------	------	------	------	1	------	------	------	------	------	1	------	----
133	Nonpuerperal diseases of the breast (cancer excepted)	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	----
	VII. CHILDBIRTH	339	------	339	330	3	1	1	4	132	108	89	1	------	------	------	339	------	----
134	Accidents of pregnancy	95	------	95	91	3	------	------	1	33	38	20	------	------	------	------	95	------	----
135	Puerperal hemorrhage	21	------	21	21	------	------	------	------	3	9	9	------	------	------	------	21	------	----
136	Other accidents of labor	31	------	31	31	------	------	------	------	7	13	11	------	------	------	------	31	------	----
137	Puerperal septicemia	84	------	84	82	------	------	------	2	38	18	25	1	------	------	------	84	------	----
138	Puerperal convulsions	78	------	78	76	------	1	1	------	36	23	17	------	------	------	------	78	------	----
139	Puerperal phlegmasia alba dolens	1	------	1	1	------	------	------	------	------	1	------	------	------	------	------	1	------	----
140	Other puerperal accidents	29	------	29	28	------	------	------	1	15	6	7	------	------	------	------	29	------	----
141	Puerperal diseases of the breast	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	----

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*Indefinite and unsatisfactory title. †Order of titles changed.

No.	CAUSE OF DEATH.	Total Deaths	Male	Female	White	Negro	Indian	Chinese	Japanese	WHITE.				Under 1 Year	1 to 4 Years	5 to 14 Years	15 to 64 Years	65 Years and Over	ge Unknown...
										Born in California	Born in Other States	Foreign Born	Unknown						
	VIII. DISEASES OF THE SKIN	129	89	40	127	1	------	1	------	20	57	49	1	9	3	1	38	78	----
142	Gangrene	70	48	22	68	1	------	1	------	1	33	33	1	------	1	------	12	57	----
143	Carbuncle	13	11	2	13	------	------	------	------	1	10	2	------	------	------	------	9	4	----
*144	Abscess	22	14	8	22	------	------	------	------	6	9	7	------	3	------	------	10	9	----
145	Other diseases of the skin	24	16	8	24	------	------	------	------	12	5	7	------	6	2	1	7	8	----
	IX. DISEASES OF THE LOCOMOTOR SYSTEM	60	36	24	58	1	------	1	------	23	16	19	------	11	5	6	29	9	----
146	Diseases of bones	55	31	24	53	1	------	1	------	23	15	15	------	11	5	5	27	7	----
147	Diseases of joints	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	----
*148	Amputation	3	3	------	3	------	------	------	------	------	1	2	------	------	------	1	2	------	----
149	Other diseases of organs of locomotion	2	2	------	2	------	------	------	------	------	------	2	------	------	------	------	------	2	----
	X. MALFORMATIONS	268	146	122	266	1	------	------	1	259	7	------	------	242	14	8	4	------	----
150	(a) Hydrocephalus	25	12	13	25	------	------	------	------	23	2	------	------	18	2	2	3	------	----
	(b) Congenital malformation of heart, cyanosis	189	105	84	188	------	------	------	1	184	4	------	------	174	9	6	------	------	----
	(c) Other congenital malformations	54	29	25	53	1	------	------	------	52	1	------	------	50	3	------	1	------	----
	XI. EARLY INFANCY	1,108	644	464	1,054	15	3	8	28	1,053	1	------	------	1,108	------	------	------	------	----
151	(a) Premature birth	523	291	232	503	7	1	2	10	503	------	------	------	523	------	------	------	------	----
	*(b) Congenital debility	490	296	194	465	6	1	3	15	464	1	------	------	490	------	------	------	------	----
152	Other diseases of early infancy	85	51	34	77	2	1	3	2	77	------	------	------	85	------	------	------	------	----
153	Lack of care	10	6	4	9	------	------	------	1	9	------	------	------	10	------	------	------	------	----
	XII. OLD AGE	869	515	354	832	4	14	19	------	10	438	362	22	------	------	------	21	843	5
*154	Old age	869	515	354	832	4	14	19	------	10	438	362	22	------	------	------	21	843	5
	XIII. VIOLENCE	3,326	2,779	547	3,102	37	19	97	71	763	920	1,086	333	119	124	148	2,506	387	42
155	Suicide by poison	242	165	77	233	3	------	5	1	63	85	60	25	------	------	1	217	24	----
156	Suicide by asphyxia	39	29	10	39	------	------	------	------	8	10	17	4	------	------	------	37	2	----
157	Suicide by hanging or strangulation	67	60	7	52	------	------	8	7	3	9	33	7	------	------	1	59	6	1
158	Suicide by drowning	27	25	2	26	1	------	------	------	1	5	12	8	------	------	------	22	3	2
159	Suicide by firearms	292	273	19	274	7	1	------	10	52	95	86	41	------	------	2	265	23	2
160	Suicide by cutting instruments	64	59	5	58	------	------	3	3	9	16	26	7	------	------	------	56	6	2
161	Suicide by jumping from high places	8	8	------	6	------	------	1	1	------	2	3	1	------	------		6	2	----

162	Suicide by crushing	12	12	------	10	------	------	------	2	1	------	3	6	------	------	------	12	------	----
163	Other suicides	6	6	------	5	------	------	1	------	------	------	3	2	------	------	------	5	------	1
164	Fractures	13	8	5	12	------	------	1	------	1	3	7	1	------	------	------	6	7	----
165	Dislocations	1	------	1	1	------	------	------	------	1	------	------	------	------	------	------	1	------	----
†167	Burns and scalds	138	73	65	132	2	1	3	------	48	45	37	2	4	32	18	63	20	1
168	Burning by corrosive substances	6	2	4	6	------	------	------	------	2	2	2	------	1	------	------	5	------	----
169	Heat and sunstroke	55	45	10	52	------	------	2	1	4	17	25	6	3	------	1	34	16	1
170	Cold and freezing	19	19	------	16	------	1	2	------	5	5	4	2	------	------	2	10	7	----
171	Lightning (electricity)	37	36	1	36	------	------	1	------	11	14	10	1	------	------	1	35	1	----
172	Drowning	273	255	18	255	5	1	5	7	67	52	82	54	------	20	30	203	9	11
173	Starvation, privation, etc.	8	7	1	4	------	------	4	------	1	1	1	1	1	------	------	3	3	1
174	Inhalation of poisonous gases	87	64	23	76	2	------	7	2	14	18	39	5	1	3	2	67	13	1
175	Other accidental poisonings	134	91	43	127	3	------	2	2	59	38	22	8	3	36	12	67	14	2
†166	(a) Accidental gunshot wounds	91	86	5	88	------	2	------	1	44	25	16	3	------	6	11	72	2	----
	(b) Injuries by machinery	38	37	1	37	------	------	1	------	8	10	18	1	------	------	3	34	1	----
	(c) Injuries in mines and quarries	60	60	------	56	------	------	3	1	7	9	34	6	------	------	1	58	------	1
	(d) Railroad accidents and injuries	479	425	54	457	4	5	5	8	79	124	172	82	2	5	24	392	50	6
	(e) Injuries by horses and vehicles	233	209	24	220	1	2	3	7	68	76	66	10	2	8	18	173	32	----
	(f) Other accidental traumatisms	553	458	95	518	1	3	26	5	79	198	209	32	10	11	18	373	132	9
176	(a) Suffocation	26	15	11	25	------	------	------	1	20	2	3	------	19	1	1	3	2	----
	(b) Injuries at birth	67	44	23	66	1	------	------	------	66	------	------	------	67	------	------	------	------	----
	(c) Homicide	244	203	41	208	7	3	14	12	38	57	95	18	6	------	1	224	12	1
	(d) Other external violence	7	5	2	7	------	------	------	------	4	2	1	------	------	2	1	4	------	----
	XIV. ILL-DEFINED DISEASES	275	161	144	264	3	1	4	3	177	29	34	24	156	18	5	72	15	9
*177	"Dropsy"	26	14	12	24	------	------	2	------	3	10	10	1	1	------	1	9	15	----
*178	Sudden death	2	2	------	2	------	------	------	------	------	1	1	------	------	------	------	2	------	----
*179	(a) Heart failure	14	11	3	14	------	------	------	------	5	5	3	1	2	1	------	10	------	1
	(b) Inanition (over 3 months)‡	94	48	46	93	------	------	------	1	85	2	5	1	77	11	1	5	------	----
	(c) Debility (over 3 months)‡	7	2	5	6	1	------	------	------	5	1	------	------	4	1	------	2	------	----
	(d) Marasmus (over 3 months)‡	77	41	36	74	1	------	1	1	68	2	4	------	69	4	------	3	------	1
	(e) Fever	2	------	2	2	------	------	------	------	1	1	------	------	1	------	------	1	------	----
	(f) Other ill-defined diseases	17	11	6	16	------	------	------	1	5	6	5	------	1	------	1	14	------	1
	(g) Unknown	36	32	4	33	1	1	1	------	5	1	6	21	1	1	2	26	------	6

*Indefinite and unsatisfactory title. †Order of titles changed.

‡Deaths reported from this cause, under 3 months of age, are compiled under "congenital debility" 151 (b).

TABLE 30.—*Deaths from Certain Principal Causes, with Proportion per 1,00*

CAUSE OF DEATH.	26 Freeholders' Charter Cities	Northern California.				Central		
		Eureka.....	Napa......	Santa Rosa.	Grass Valley	San Francisco......	Alameda ..	Berkeley ...
DEATHS.								
ALL CAUSES	17,472	180	70	105	58	6,150	309	405
Typhoid fever	221	1	1	3	------	60	1	5
Malarial fever	31	------	------	------	------	7	------	------
Smallpox	2	------	------	------	------	------	------	------
Measles	71	1	1	------	------	29	------	2
Scarlet fever	47	------	------	------	------	18	1	------
Whooping-cough	133	2	1	------	------	51	3	8
Diphtheria and croup	129	4	------	------	------	51	1	2
Influenza	26	------	------	------	------	5	------	1
Plague	------	------	------	------	------	------	------	------
Other epidemic diseases	64	1	------	1	------	28	------	------
Tuberculosis of lungs	2,209	13	5	12	9	675	27	31
Tuberculosis of other organs	389	1	------	1	------	147	7	13
Cancer	1,244	19	5	6	3	490	27	38
Other general diseases	683	6	5	4	1	245	12	22
Meningitis	240	2	3	1	------	68	4	3
Other diseases of nervous system	1,239	15	10	17	5	308	33	31
Diseases of circulatory system	2,907	27	10	12	15	1,166	58	86
Pneumonia and broncho-pneumonia	1,178	5	4	8	4	459	18	22
Other diseases of respiratory system	511	11	2	3	------	205	10	8
Diarrhea and enteritis, under 2 years	491	3	1	3	1	163	6	13
Diarrhea and enteritis, 2 years and over	153	------	------	1	1	50	3	7
Other diseases of digestive system	953	12	7	6	3	318	25	22
Bright's disease and nephritis	1,170	5	4	5	4	390	19	21
Childbirth	172	1	1	3	1	72	5	5
Diseases of early infancy	619	5	2	4	2	221	9	19
Suicide	443	3	1	2	1	219	7	3
Other violence	1,220	30	3	7	6	436	23	21
All other causes	927	13	4	6	2	269	10	22
PROPORTION PER 1,000 TOTAL DEATHS.								
ALL CAUSES	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
Typhoid fever	12.7	5.6	14.3	28.6	------	9.8	3.2	12.4
Malarial fever	1.8	------	------	------	------	1.1	------	------
Smallpox	0.1	------	------	------	------	------	------	------
Measles	4.1	5.6	14.3	------	------	4.7	------	4.9
Scarlet fever	2.7	------	------	------	------	2.9	3.2	------
Whooping-cough	7.6	11.1	14.3	------	------	8.3	9.7	19.7
Diphtheria and croup	7.4	22.2	------	------	------	8.3	3.2	4.9
Influenza	1.5	------	------	------	------	0.8	------	2.5
Plague	------	------	------	------	------	------	------	------
Other epidemic diseases	3.7	5.6	------	9.5	------	4.6	------	------
Tuberculosis of lungs	126.4	72.2	71.4	114.3	155.2	109.8	87.4	76.6
Tuberculosis of other organs	22.3	5.5	------	9.5	------	23.9	22.7	32.1
Cancer	71.2	105.5	71.4	57.1	51.7	79.7	87.4	93.8
Other general diseases	39.1	33.3	71.4	38.1	17.2	39.8	38.8	54.3
Meningitis	13.7	11.1	42.9	9.5	------	11.1	12.9	7.4
Other diseases of nervous system	70.9	83.3	142.9	161.9	86.2	50.1	106.8	76.5
Diseases of circulatory system	166.4	150.0	142.9	114.3	258.7	189.6	187.7	212.4
Pneumonia and broncho-pneumonia	67.2	27.8	57.1	76:2	69.0	74.6	58.3	54.3
Other diseases of respiratory system	29.2	61.1	28.6	28.6	------	33.3	32.4	19.7
Diarrhea and enteritis, under 2 years	28.1	16.7	14.3	28.6	17.2	26.5	19.4	32.1
Diarrhea and enteritis, 2 years and over	8.8	------	------	9.5	17.2	8.1	9.7	17.3
Other diseases of digestive system	54.5	66.7	100.0	57.1	51.7	51.7	80.9	54.3
Bright's disease and nephritis	67.0	27.8	57.1	47.6	69.0	63.4	61.5	51.9
Childbirth	9.9	5.5	14.3	28.6	17.2	11.7	16.2	12.4
Diseases of early infancy	35.4	27.8	28.6	38.1	34.5	35.9	29.1	46.9
Suicide	25.4	16.7	14.3	19.1	17.2	35.6	22.7	7.4
Other violence	69.8	166.7	42.8	66.7	103.5	70.9	74.4	51.9
All other causes	53.1	72.2	57.1	57.1	34.5	43.8	32.4	54.3

Total Deaths, for Freeholders' Charter Cities arranged Geographically: 1909.

California.

Oakland	Richmond	Salinas	Palo Alto	San Jose	Santa Cruz	Watsonville	Fresno	Sacramento	Stockton	Vallejo
1,642	92	68	48	386	190	103	288	698	455	172
13	----	2	----	2	5	----	17	21	1	4
2	----	----	----	----	2	----	1	8	3	----
----	----	----	----	----	----	----	----	----	----	----
4	1	----	----	3	----	1	----	3	1	----
3	1	----	----	1	3	----	1	2	----	----
20	1	----	----	----	2	1	----	5	1	----
18	----	----	----	2	1	1	8	2	----	3
2	----	----	----	2	----	----	2	1	----	----
----	----	----	----	----	----	----	----	----	----	----
6	----	----	----	1	1	1	----	6	1	----
180	8	6	4	40	22	10	25	75	69	19
35	----	4	2	15	5	8	7	14	6	2
112	2	9	4	32	17	6	16	34	22	6
56	1	5	----	8	4	8	8	31	10	14
26	1	1	----	7	1	6	7	12	5	3
127	3	4	2	28	22	7	6	35	95	18
303	10	6	9	73	41	12	33	85	80	26
112	8	5	----	26	8	7	26	50	31	10
43	2	3	----	15	2	----	14	30	16	2
58	5	1	1	16	6	2	17	29	3	3
6	----	1	----	2	----	1	5	6	13	1
86	6	2	2	20	11	4	17	49	14	8
131	3	5	7	35	7	6	9	44	28	12
20	1	1	2	4	2	1	4	6	4	2
46	5	2	4	10	1	11	20	26	2	6
43	1	3	2	7	4	2	8	20	4	5
121	29	4	7	19	10	5	28	45	19	17
69	4	4	2	18	13	8	9	59	27	11
1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
7.9	----	29.4	----	5.2	26.3	----	59.0	30.1	2.2	23.3
1.2	----	----	----	----	10.5	----	3.5	11.5	6.6	----
----	----	----	----	----	----	----	----	----	----	----
2.4	10.9	----	----	7.8	----	9.7	----	4.3	2.2	----
1.8	10.9	----	----	2.6	15.8	----	3.5	2.9	----	----
12.2	10.9	----	----	----	10.5	9.7	----	7.2	2.2	----
11.0	----	----	----	5.2	5.3	9.7	27.8	2.9	----	17.4
1.2	----	----	----	5.2	----	----	6.9	1.4	----	----
----	----	----	----	----	----	----	----	----	----	----
3.7	----	----	----	2.6	5.3	9.7	----	8.6	2.2	----
109.6	87.0	88.3	83.3	103.6	115.8	97.1	86.8	107.5	151.6	110.5
21.3	----	58.8	41.7	38.9	26.3	29.1	24.3	20.1	13.2	11.6
68.2	21.7	132.4	83.3	82.9	89.5	58.3	55.6	48.7	48.3	34.9
34.1	10.9	73.6	----	20.7	21.1	77.7	27.8	44.4	22.0	81.4
15.8	10.9	14.7	----	18.1	5.3	58.3	24.3	17.2	11.0	17.4
77.4	32.6	58.8	41.7	72.5	115.8	68.0	20.8	50.1	208.8	104.7
184.5	108.7	88.3	187.5	189.1	215.8	116.5	114.6	121.8	175.8	151.2
68.2	86.9	73.5	----	67.4	42.1	68.0	90.3	71.6	68.1	58.1
26.2	21.7	44.1	----	38.9	10.5	----	48.6	43.0	35.1	11.6
35.3	54.3	14.7	20.8	41.4	31.6	19.4	59.0	41.5	6.6	17.4
3.7	----	14.7	----	5.2	----	9.7	17.4	8.6	28.6	5.8
52.4	65.2	29.4	41.7	51.8	57.9	38.8	59.0	70.2	31.0	46.5
79.8	32.6	73.5	145.8	90.7	36.8	58.3	31.3	63.0	61.5	69.8
12.2	10.9	14.7	41.7	10.4	10.5	9.7	13.9	8.6	8.8	11.6
28.0	54.3	29.4	83.3	25.9	5.3	106.8	69.4	37.2	4.4	34.9
26.2	10.9	44.1	41.7	18.1	21.0	19.4	27.8	28.6	8.8	29.1
73.7	315.2	58.8	145.8	49.2	52.6	48.5	97.2	64.5	41.7	98.8
42.0	43.5	58.8	41.7	46.6	68.4	77.7	31.2	84.5	59.3	64.0

TABLE 30.—*Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Freeholders' Charter Cities arranged Geographically: 1909—Continued.*

CAUSE OF DEATH.	Southern California.							
	Los Angeles	Long Beach	Pasadena...	Santa Monica...	Riverside ..	San Bernardino..	San Diego..	Santa Barbara..
DEATHS.								
ALL CAUSES	4,013	235	410	103	238	250	601	203
Typhoid fever	48	6	4	1	12	11	------	3
Malarial fever	5	------	------	------	------	------	------	3
Smallpox	1	1	------	------	------	------	------	------
Measles	20	------	------	------	2	2	1	------
Scarlet fever	13	------	1	------	1	1	------	1
Whooping-cough	28	------	------	------	2	5	1	2
Diphtheria and croup	24	1	------	------	6	------	3	2
Influenza	4	------	3	------	1	------	3	2
Plague	------	------	------	------	------	------	------	------
Other epidemic diseases	14	1	1	------	1	------	1	------
Tuberculosis of lungs	661	15	89	12	43	64	79	16
Tuberculosis of other organs	80	4	12	2	8	2	14	5
Cancer	280	18	22	7	10	12	34	13
Other general diseases	156	9	19	5	10	12	25	7
Meningitis	66	4	6	1	2	2	6	3
Other diseases of nervous system	287	25	44	9	17	14	55	22
Diseases of circulatory system	542	44	60	17	34	17	107	34
Pneumonia and broncho-pneumonia	231	14	28	8	9	27	50	8
Other diseases of respiratory system	93	6	9	2	7	5	14	9
Diarrhea and enteritis, under 2 years	113	6	5	------	10	12	12	2
Diarrhea and enteritis, 2 years and over	39	3	3	------	------	------	9	2
Other diseases of digestive system	230	15	24	7	12	11	33	9
Bright's disease and nephritis	299	27	28	8	15	12	32	14
Childbirth	28	2	3	1	1	1	------	1
Diseases of early infancy	156	8	13	5	9	6	16	11
Suicide	80	1	------	1	1	8	14	3
Other violence	266	11	17	6	11	19	46	14
All other causes	249	14	19	11	14	7	46	17
PROPORTION PER 1,000 TOTAL DEATHS.								
ALL CAUSES	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
Typhoid fever	12.0	25.5	9.8	9.7	50.4	44.0	------	14.8
Malarial fever	1.2	------	------	------	------	------	------	14.8
Smallpox	0.2	4.3	------	------	------	------	------	------
Measles	5.0	------	------	------	8.4	8.0	1.7	------
Scarlet fever	3.2	------	2.4	------	4.2	4.0	------	4.9
Whooping-cough	7.0	------	------	------	8.4	20.0	1.7	9.9
Diphtheria and croup	6.0	4.3	------	------	25.2	------	5.0	9.9
Influenza	1.0	------	7.3	------	4.2	------	5.0	9.9
Plague	------	------	------	------	------	------	------	------
Other epidemic diseases	3.5	4.3	2.4	------	4.2	------	1.7	------
Tuberculosis of lungs	164.7	63.8	217.1	116.5	180.7	256.0	131.4	78.8
Tuberculosis of other organs	19.9	17.0	29.3	19.4	33.6	8.0	23.3	24.6
Cancer	69.8	76.6	53.7	68.0	42.0	48.0	56.6	64.0
Other general diseases	38.9	38.3	46.3	48.5	42.0	48.0	41.6	34.5
Meningitis	16.4	17.0	14.6	9.7	8.4	8.0	10.0	14.8
Other diseases of nervous system	71.5	106.4	107.3	87.4	71.5	56.0	91.5	108.4
Diseases of circulatory system	135.1	187.2	146.4	165.0	142.9	68.0	178.0	167.5
Pneumonia and broncho-pneumonia	57.6	59.6	68.3	77.7	37.8	108.0	83.2	39.4
Other diseases of respiratory system	23.2	25.5	22.0	19.4	29.4	20.0	23.3	44.3
Diarrhea and enteritis, under 2 years	28.2	25.5	12.2	------	42.0	48.0	20.0	9.8
Diarrhea and enteritis, 2 years and over	9.7	12.8	7.3	------	------	------	15.0	9.8
Other diseases of digestive system	57.3	63.8	58.5	68.0	50.4	44.0	54.9	44.3
Bright's disease and nephritis	74.5	114.9	68.3	77.7	63.0	48.0	53.2	69.0
Childbirth	7.0	8.5	7.3	9.7	4.2	4.0	------	4.9
Diseases of early infancy	38.9	34.0	31.7	48.5	37.8	24.0	26.6	54.2
Suicide	19.9	4.3	------	9.7	4.2	32.0	23.3	14.8
Other violence	66.3	46.8	41.5	58.3	46.2	76.0	76.5	69.0
All other causes	62.0	59.6	46.3	106.8	58.9	28.0	76.5	83.7

TABLE 31.—*Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Freeholders' Charter Cities arranged Geographically: 1908.*

CAUSE OF DEATH.	24 Freeholders' Charter Cities.	Northern California.			
		Eureka	Napa	Santa Rosa	Grass Valley
DEATHS.					
ALL CAUSES	17,480	198	77	107	88
Typhoid fever	267	2	--------	1	1
Malarial fever	24	--------	--------	2	1
Smallpox	4	--------	--------	--------	--------
Measles	54	--------	--------	--------	1
Scarlet fever	35	--------	--------	--------	--------
Whooping-cough	71	--------	1	--------	--------
Diphtheria and croup	207	--------	2	--------	2
Influenza	50	1	--------	1	--------
Plague	3	--------	--------	--------	--------
Other epidemic diseases	66	--------	--------	--------	1
Tuberculosis of lungs	2,243	15	7	10	7
Tuberculosis of other organs	377	10	1	2	1
Cancer	1,129	16	3	5	7
Other general diseases	621	11	3	6	4
Meningitis	325	5	1	2	1
Other diseases of nervous system	1,266	14	9	16	2
Diseases of circulatory system	2,671	29	14	18	15
Pneumonia and broncho-pneumonia	1,371	10	9	11	8
Other diseases of respiratory system	501	3	6	6	1
Diarrhea and enteritis, under 2 years	489	3	1	4	--------
Diarrhea and enteritis, 2 years and over	138	5	1	1	--------
Other diseases of digestive system	989	5	6	6	10
Bright's disease and nephritis	1,109	6	5	5	--------
Childbirth	202	2	--------	--------	3
Diseases of early infancy	664	7	1	4	6
Suicide	475	7	1	1	2
Other violence	1,178	28	3	4	6
All other causes	951	19	3	2	9
PROPORTION PER 1,000 TOTAL DEATHS.					
ALL CAUSES	1000.0	1000.0	1000.0	1000.0	1000.0
Typhoid fever	15.3	10.1	--------	9.3	11.4
Malarial fever	1.4	--------	--------	18.7	11.4
Smallpox	0.2	--------	--------	--------	--------
Measles	3.1	--------	--------	--------	11.4
Scarlet fever	2.0	--------	--------	--------	--------
Whooping-cough	4.1	--------	13.0	--------	--------
Diphtheria and croup	11.8	--------	26.0	--------	22.7
Influenza	2.9	5.0	--------	9.3	--------
Plague	0.2	--------	--------	--------	--------
Other epidemic diseases	3.8	--------	--------	--------	11.4
Tuberculosis of lungs	128.3	75.8	90.9	93.5	79.5
Tuberculosis of other organs	21.6	50.5	13.0	18.7	11.4
Cancer	64.6	80.8	39.0	46.7	79.6
Other general diseases	35.5	55.6	39.0	56.1	45.4
Meningitis	18.6	25.3	13.0	18.7	11.4
Other diseases of nervous system	72.4	70.7	116.8	149.6	22.7
Diseases of circulatory system	152.8	146.5	181.8	168.2	170.4
Pneumonia and broncho-pneumonia	78.4	50.5	116.8	102.8	90.9
Other diseases of respiratory system	28.6	15.1	77.9	56.1	11.4
Diarrhea and enteritis, under 2 years	28.0	15.1	13.0	37.4	--------
Diarrhea and enteritis, 2 years and over	7.9	25.3	13.0	9.3	--------
Other diseases of digestive system	56.6	25.3	77.9	56.1	113.6
Bright's disease and nephritis	63.4	30.3	64.9	46.7	--------
Childbirth	11.5	10.1	--------	--------	34.1
Diseases of early infancy	38.0	35.3	13.0	37.4	68.2
Suicide	27.2	35.3	13.0	9.3	22.7
Other violence	67.4	141.4	39.0	37.4	68.2
All other causes	54.4	96.0	39.0	18.7	102.2

TABLE 31.—*Deaths from Certain Principal Causes, with Proportion per 1,000 Total*

CAUSE OF DEATH.	Central						
	San Francisco	Alameda	Berkeley	Oakland	Salinas	San Jose	Santa Cruz
DEATHS.							
ALL CAUSES	6,260	345	448	1,646	63	389	167
Typhoid fever	77	9	3	27	1	9	5
Malarial fever	6	2	------	1	------	2	------
Smallpox	2	------	------	------	------	------	------
Measles	23	------	4	2	------	3	3
Scarlet fever	17	------	------	1	------	------	------
Whooping-cough	25	1	------	5	------	------	2
Diphtheria and croup	81	3	4	13	------	6	------
Influenza	5	------	------	------	------	2	7
Plague	1	------	------	2	------	------	------
Other epidemic diseases	19	------	2	3	------	1	------
Tuberculosis of lungs	718	21	35	158	7	47	15
Tuberculosis of other organs	127	9	14	37	1	11	2
Cancer	409	24	38	117	3	27	12
Other general diseases	244	12	14	55	1	16	3
Meningitis	112	5	4	27	4	12	1
Other diseases of nervous system	351	28	30	117	7	29	23
Diseases of circulatory system	1,054	76	83	288	10	76	32
Pneumonia and broncho-pneumonia	580	33	24	114	6	27	11
Other diseases of respiratory system	193	10	19	53	2	7	3
Diarrhea and enteritis, under 2 years	171	7	7	57	1	10	·4
Diarrhea and enteritis, 2 years and over	32	2	3	14	1	3	1
Other diseases of digestive system	357	19	28	97	------	14	8
Bright's disease and nephritis	376	25	40	125	5	29	5
Childbirth	76	5	7	14	2	3	------
Diseases of early infancy	234	17	19	66	3	12	6
Suicide	202	11	13	53	1	11	6
Other violence	463	15	21	113	5	22	8
All other causes	305	11	36	87	3	10	10
PROPORTION PER 1,000 TOTAL DEATHS.							
ALL CAUSES	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
Typhoid fever	12.3	26.1	6.7	16.4	15.9	23.1	29.9
Malarial fever	1.0	5.8	------	0.6	------	5.1	------
Smallpox	0.3	------	------	------	------	------	------
Measles	3.7	------	8.9	1.2	------	7.7	18.0
Scarlet fever	2.7	------	------	0.6	------	------	------
Whooping-cough	4.0	2.9	------	3.0	------	------	12.0
Diphtheria and croup	12.9	8.7	8.9	7.9	------	15.4	------
Influenza	0.8	------	------	------	------	5.1	41.9
Plague	0.2	------	------	1.2	------	------	------
Other epidemic diseases	3.0	------	4.5	1.8	------	2.6	------
Tuberculosis of lungs	114.7	60.9	78.1	96.0	111.1	120.8	89.8
Tuberculosis of other organs	20.3	26.1	31.3	22.5	15.9	28.3	12.0
Cancer	65.3	69.5	84.8	71.1	47.6	69.4	71.9
Other general diseases	39.0	34.8	31.3	33.4	15.9	41.1	18.0
Meningitis	17.9	14.5	8.9	16.4	63.5	30.9	6.0
Other diseases of nervous system	56.1	81.1	66.9	71.1	111.1	74.6	137.7
Diseases of circulatory system	168.4	220.3	185.3	175.0	158.7	195.4	191.6
Pneumonia and broncho-pneumonia	92.6	95.6	53.6	69.3	95.2	69.4	65.9
Other diseases of respiratory system	30.8	29.0	42.4	32.2	31.7	18.0	18.0
Diarrhea and enteritis, under 2 years	27.3	20.3	15.6	34.6	15.9	25.7	23.9
Diarrhea and enteritis, 2 years and over	5.1	5.8	6.7	8.5	15.9	7.7	6.0
Other diseases of digestive system	57.0	55.1	62.5	58.9	------	36.0	47.9
Bright's disease and nephritis	60.1	72.4	89.3	75.9	79.4	74.5	29.9
Childbirth	12.1	14.5	15.6	8.5	31.7	7.7	------
Diseases of early infancy	37.4	49.3	42.4	40.1	47.6	30.9	35.9
Suicide	32.3	31.9	29.0	32.2	15.9	28.3	35.9
Other violence	74.0	43.5	46.9	68.7	79.4	56.6	47.9
All other causes	48.7	31.9	80.4	52.9	47.6	25.7	59.9

Deaths, for Freeholders' Charter Cities arranged Geographically: 1908—Continued.

California.					Southern California							
Watsonville	Fresno	Sacramento	Stockton ...	Vallejo	Los Angeles	Long Beach	Pasadena...	Santa Monica...	Riverside ..	San Bernardino ..	San Diego .	Santa Barbara ..
103	365	755	481	192	3,752	219	373	110	204	262	701	175
2	18	30	6	1	49	5	------	2	4	9	5	1
------	2	3	1	------	3	------	------	------	------	------	1	------
------	------	------	1	------	1	------	------	------	------	------	------	------
1	2	1	------	2	7	------	1	------	------	------	4	------
------	1	2	2	------	11	------	------	------	1	------	------	------
------	4	4	1	------	16	------	------	2	2	5	2	1
1	10	15	5	------	48	3	1	------	4	------	6	3
------	2	2	------	1	16	1	1	------	1	------	9	1
------	------	------	------	------	------	------	------	------	------	------	------	------
1	5	7	1	2	17	1	------	------	1	1	2	2
16	48	74	70	18	622	15	104	7	38	65	106	20
2	13	15	10	1	78	3	9	2	5	4	19	1
7	17	45	9	11	245	20	28	5	5	13	47	16
1	10	33	13	5	138	3	12	2	6	6	20	3
4	14	21	6	5	67	4	3	4	4	7	6	6
9	15	45	82	26	295	23	22	9	16	9	75	14
14	24	83	90	25	477	38	57	20	20	15	79	34
3	26	65	28	14	259	7	19	13	16	31	49	8
1	9	21	14	2	100	7	9	1	2	5	25	2
3	25	31	9	5	101	4	6	3	4	7	19	7
2	4	7	7	1	30	7	4	------	2	2	5	4
3	32	58	13	9	200	18	22	10	9	12	42	11
6	6	38	25	19	237	29	31	6	13	16	53	9
1	10	14	3	2	39	1	------	1	1	7	6	5
3	18	31	16	8	151	1	10	1	10	12	17	11
3	8	22	9	6	87	2	5	1	2	5	12	5
11	26	46	30	20	220	12	19	13	24	17	46	6
9	16	42	30	9	238	15	10	8	14	14	46	5
1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
19.4	49.3	39.7	12.5	5.2	13.1	22.8	------	18.2	19.6	34.4	7.1	5.7
------	5.5	4.0	2.1	------	0.8	------	------	------	------	------	1.4	------
------	------	------	2.1	------	0.3	------	------	------	------	------	------	------
9.7	5.5	1.3	------	10.4	1.9	------	2.7	------	------	------	5.7	------
------	2.7	2.7	4.1	------	2.9	------	------	------	4.9	------	------	------
------	11.0	5.3	2.1	------	4.3	------	------	18.2	9.8	19.1	2.9	5.7
9.7	27.4	19.9	10.4	------	12.8	13.7	2.7	------	19.6	------	8.6	17.1
------	5.5	2.6	------	5.2	4.3	4.6	2.7	------	4.9	------	12.8	5.7
------	------	------	------	------	------	------	------	------	------	------	------	------
9.7	13.7	9.3	2.1	10.4	4.5	4.6	------	------	4.9	3.8	2.9	11.4
155.4	131.5	98.0	145.5	93.8	165.8	68.5	278.8	63.6	186.3	248.1	151.2	114.3
19.4	35.6	19.9	20.8	5.2	20.8	13.7	24.1	18.2	24.5	15.3	27.1	5.7
68.0	46.6	59.6	18.7	57.3	65.3	91.3	75.1	45.4	24.5	49.6	67.0	91.4
9.7	27.4	43.7	27.0	26.0	36.8	13.7	32.2	18.2	29.4	22.9	28.5	17.1
38.9	38.4	27.8	12.5	26.0	17.9	18.2	8.1	36.4	19.6	26.7	8.6	34.3
87.4	41.1	59.6	170.5	135.4	78.6	105.0	59.0	81.8	78.5	34.3	107.0	80.0
135.9	65.8	109.9	187.1	130.2	127.1	173.5	152.8	181.8	98.1	57.3	112.7	194.3
29.1	71.2	86.1	58.2	72.9	69.0	32.0	50.9	118.2	78.5	118.3	69.9	45.7
9.7	24.6	27.8	29.1	10.4	26.6	32.0	24.1	9.1	9.8	19.1	35.7	11.4
29.1	68.5	41.1	18.7	26.0	26.9	18.2	16.1	27.3	19.6	26.7	27.1	40.0
19.4	11.0	9.3	14.5	5.2	8.0	32.0	10.7	------	9.8	7.6	7.1	22.9
29.1	87.7	76.8	27.0	46.9	53.3	82.2	59.0	90.9	44.1	45.8	59.9	62.9
58.3	16.4	50.3	52.0	99.0	63.2	132.4	83.1	54.5	63.7	61.1	75.6	51.4
9.7	27.4	18.6	6.2	10.4	10.4	4.6	------	9.1	4.9	26.7	8.6	28.6
29.1	49.3	41.1	33.3	41.7	40.2	4.6	26.8	9.1	49.0	45.8	24.3	62.9
29.1	21.9	29.1	18.7	31.3	23.2	9.1	13.4	9.1	9.8	19.1	17.1	28.6
106.8	71.2	60.9	62.4	104.2	58.6	54.8	50.9	118.2	117.6	64.9	65.6	34.3
87.4	43.8	55.6	62.4	46.9	63.4	68.5	26.8	72.7	68.6	53.4	65.6	28.6

TABLE 32.—*Deaths from Certain Principal Causes, with Proportion*

CAUSE OF DEATH.	The State	Northern					
		Coast Counties.					
		Del Norte	Humboldt	Lake	Mendocino	Napa	Sonoma
DEATHS.							
ALL CAUSES	30,985	31	334	70	317	518	611
Typhoid fever	461	------	2	4	3	3	9
Malarial fever	112	------	------	------	------	1	2
Smallpox	6	------	------	------	------	------	------
Measles	119	------	1	------	3	1	10
Scarlet fever	69	------	------	------	1	------	1
Whooping-cough	217	------	2	4	------	1	5
Diphtheria and croup	248	------	10	------	------	1	2
Influenza	82	------	------	------	------	1	1
Plague	1	------	------	------	------	------	------
Other epidemic diseases	108	------	2	------	2	2	1
Tuberculosis of lungs	4,061	3	31	9	31	47	69
Tuberculosis of other organs	612	------	1	------	4	3	11
Cancer	1,945	4	26	3	12	23	31
Other general diseases	1,177	2	13	3	10	12	24
Meningitis	398	------	5	------	4	6	6
Other diseases of nervous system	2,479	1	28	6	53	169	84
Diseases of circulatory system	4,966	9	47	8	45	94	97
Pneumonia and broncho-pneumonia	2,081	------	5	3	28	19	44
Other diseases of respiratory system	842	1	20	------	4	8	26
Diarrhea and enteritis, under 2 years	966	------	7	------	7	1	17
Diarrhea and enteritis, 2 years and over	270	------	------	1	8	3	5
Other diseases of digestive system	1,596	2	21	6	21	24	33
Bright's disease and nephritis	1,858	2	11	4	21	15	24
Childbirth	300	------	5	1	3	1	8
Diseases of early infancy	998	1	16	3	12	3	14
Suicide	702	------	5	------	7	8	12
Other violence	2,563	5	52	9	29	20	40
All other causes	1,748	1	24	6	9	52	35
PROPORTION PER 1,000 TOTAL DEATHS.							
ALL CAUSES	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
Typhoid fever	14.9	------	6.0	57.1	9.5	5.8	14.7
Malarial fever	3.6	------	------	------	------	1.9	3.3
Smallpox	0.2	------	------	------	------	------	------
Measles	3.8	------	3.0	------	9.5	1.9	16.4
Scarlet fever	2.2	------	------	------	3.2	------	1.6
Whooping-cough	7.0	------	6.0	57.1	------	1.9	8.2
Diphtheria and croup	8.0	------	29.9	------	------	1.9	3.3
Influenza	2.6	------	------	------	------	1.9	1.6
Plague	*	------	------	------	------	------	------
Other epidemic diseases	3.5	------	6.0	------	6.3	3.9	1.6
Tuberculosis of lungs	131.0	96.8	92.8	128.6	97.8	90.7	112.9
Tuberculosis of other organs	19.8	------	3.0	------	12.6	5.8	18.0
Cancer	62.8	129.0	77.8	42.9	37.9	44.4	50.7
Other general diseases	38.0	64.5	38.9	42.9	31.5	23.2	39.3
Meningitis	12.8	------	15.0	------	12.6	11.6	9.8
Other diseases of nervous system	80.0	32.3	83.8	85.7	167.2	326.3	137.5
Diseases of circulatory system	160.3	290.3	140.7	114.3	141.9	181.5	158.8
Pneumonia and broncho-pneumonia	67.2	------	15.0	42.9	88.3	36.7	72.0
Other diseases of respiratory system	27.2	32.3	59.9	------	12.6	15.5	42.6
Diarrhea and enteritis, under 2 years	31.2	------	20.9	------	22.1	1.9	27.8
Diarrhea and enteritis, 2 years and over	8.7	------	------	14.3	25.2	5.8	8.2
Other diseases of digestive system	51.5	64.5	62.9	85.7	66.2	46.3	54.0
Bright's disease and nephritis	60.0	64.5	32.9	57.1	66.2	29.0	39.3
Childbirth	9.7	------	15.0	14.3	9.5	1.9	13.1
Diseases of early infancy	32.2	32.3	47.9	42.8	37.9	5.8	22.9
Suicide	22.7	------	15.0	------	22.1	15.4	19.6
Other violence	82.7	161.3	155.7	128.6	91.5	38.6	65.5
All other causes	56.4	32.2	71.9	85.7	28.4	100.4	57.3

*Less than one tenth of 1 per thousand.

per 1,000 Total Deaths, for Counties arranged Geographically: 1909.

California.

	Interior Counties.											
Trinity	Butte	Colusa	Glenn	Lassen	Modoc	Nevada	Placer	Plumas	Shasta	Sierra	Siskiyou	Sutter
32	435	80	28	43	33	229	185	79	310	30	192	52
3	13	4	1	3	2	1	1	4	7	-------	4	-------
1	17	-------	-------	-------	-------	-------	5	-------	6	-------	-------	1
-------	-------	-------	-------	-------	-------	-------	-------	-------	1	-------	-------	-------
-------	-------	1	-------	-------	1	-------	-------	1	1	1	-------	-------
-------	1	-------	-------	-------	-------	1	-------	-------	-------	-------	-------	-------
-------	1	-------	-------	-------	-------	-------	-------	-------	-------	1	-------	-------
-------	7	1	-------	-------	2	2	2	-------	5	-------	3	2
-------	4	1	1	-------	1	3	-------	-------	2	2	1	1
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
-------	-------	-------	-------	-------	-------	1	1	-------	4	-------	1	-------
3	40	4	2	-------	2	32	22	7	38	-------	15	5
1	5	2	-------	2	-------	-------	2	-------	8	-------	2	-------
1	24	8	1	1	1	11	11	2	16	1	3	2
1	18	6	1	1	-------	6	6	7	6	1	10	2
1	7	-------	-------	1	-------	-------	-------	-------	-------	-------	-------	1
-------	25	7	1	3	4	23	15	5	15	2	14	5
3	46	12	11	3	3	37	28	12	41	9	36	8
-------	29	4	-------	11	7	25	12	6	14	3	19	3
1	11	2	-------	-------	-------	6	1	-------	16	-------	4	-------
-------	8	1	-------	-------	-------	8	4	1	19	1	9	1
-------	4	1	-------	-------	-------	1	2	-------	2	1	1	1
3	27	7	2	5	3	7	11	4	10	1	6	3
6	21	8	2	8	1	14	11	5	12	-------	8	3
1	6	-------	-------	-------	-------	1	2	-------	4	-------	5	1
-------	12	3	3	2	1	6	5	-------	5	-------	7	1
-------	5	3	1	-------	1	3	5	5	5	-------	8	1
5	64	10	2	3	1	28	29	17	59	3	17	7
2	40	5	-------	5	3	18	10	3	14	4	19	4
1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
93.8	29.9	50.0	35.7	69.8	60.6	4.4	5.4	50.6	22.6	-------	20.8	-------
31.3	39.1	-------	-------	-------	-------	-------	27.0	-------	19.4	-------	-------	19.2
-------	-------	-------	-------	-------	-------	-------	-------	-------	3.2	-------	-------	-------
-------	-------	12.5	-------	-------	30.3	-------	-------	12.7	3.2	33.4	-------	-------
-------	2.3	-------	-------	-------	-------	4.4	-------	-------	-------	-------	-------	-------
-------	2.3	-------	-------	-------	-------	-------	-------	-------	-------	33.4	-------	-------
-------	16.1	12.5	-------	-------	60.6	8.7	10.8	-------	16.1	-------	15.6	38.5
-------	9.2	12.5	35.7	-------	30.3	13.1	-------	-------	6.5	66.7	5.2	19.2
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
-------	-------	-------	-------	-------	-------	4.4	5.4	-------	12.9	-------	5.2	-------
93.8	91.9	50.0	71.5	-------	60.6	139.7	118.9	88.6	122.6	-------	78.1	96.2
31.3	11.5	25.0	-------	46.5	-------	-------	10.8	-------	25.8	-------	10.4	-------
31.3	55.2	87.5	35.7	23.2	30.3	48.0	59.5	25.3	51.6	33.3	15.6	38.5
31.3	41.4	75.0	35.7	23.2	-------	26.2	32.5	88.6	19.4	33.3	52.1	38.5
31.2	16.1	-------	-------	23.2	-------	-------	-------	-------	-------	-------	-------	19.2
-------	57.5	87.5	35.7	69.8	121.2	100.4	81.1	63.3	48.4	66.7	72.9	96.2
93.7	105.7	150.0	392.9	69.8	90.9	161.6	151.3	151.9	132.2	300.0	187.5	153.9
-------	66.6	50.0	-------	255.8	212.2	109.2	64.9	75.9	45.2	100.0	99.0	57.7
31.2	25.3	25.0	-------	-------	-------	26.2	5.4	-------	51.6	-------	20.8	-------
-------	18.4	12.5	-------	-------	-------	13.1	21.6	12.7	61.3	33.3	46.9	19.2
-------	9.2	12.5	-------	-------	-------	4.4	10.8	-------	6.4	33.3	5.2	19.2
93.7	62.0	87.5	71.5	116.3	90.9	30.6	59.5	50.6	32.3	33.3	31.3	57.7
187.5	48.3	37.5	71.4	69.8	30.3	61.1	59.5	63.3	38.7	-------	41.7	57.7
31.2	13.8	-------	-------	-------	-------	4.4	10.8	-------	12.9	-------	26.0	19.2
-------	27.6	37.5	107.1	46.5	30.3	26.2	27.0	-------	16.1	-------	36.5	19.2
-------	11.5	37.5	35.7	-------	30.3	13.1	27.0	63.3	16.1	-------	41.7	19.2
156.2	147.1	125.0	71.4	69.8	30.3	122.2	156.7	215.2	190.3	100.0	88.5	134.6
62.5	92.0	62.5	-------	116.3	90.9	78.6	54.1	38.0	45.2	133.3	99.0	76.9

TABLE 32.—*Deaths from Certain Principal Causes, with Proportion per*

CAUSE OF DEATH.	Northern California—Cont.		Central				
	Interior Counties—Cont		San Francisco	Other Bay Counties.			
	Tehama	Yuba		Alameda	Contra Costa	Marin	San Mateo
DEATHS.							
ALL CAUSES	188	149	6,150	3,210	334	308	256
Typhoid fever	6	3	60	29	7	2	4
Malarial fever	4	4	7	2	1	------	1
Smallpox	------	------	------	------	------	------	------
Measles	------	------	29	8	7	------	------
Scarlet fever	------	------	18	4	2	------	1
Whooping-cough	------	------	51	41	10	4	1
Diphtheria and croup	4	4	51	29	2	2	3
Influenza	1	2	5	4	1	------	------
Plague	------	------	------	1	------	------	------
Other epidemic diseases	1	------	28	9	------	------	------
Tuberculosis of lungs	27	22	675	359	41	33	13
Tuberculosis of other organs	1	1	147	71	------	7	9
Cancer	8	7	490	239	12	8	16
Other general diseases	9	3	245	114	9	14	11
Meningitis	2	------	68	49	3	7	3
Other diseases of nervous system	21	8	308	244	23	19	26
Diseases of circulatory system	27	28	1,166	624	39	59	37
Pneumonia and broncho-pneumonia	13	10	459	228	28	20	29
Other diseases of respiratory system	1	2	205	83	10	11	5
Diarrhea and enteritis, under 2 years	3	5	163	115	17	8	11
Diarrhea and enteritis, 2 years and over	1	------	50	18	1	2	2
Other diseases of digestive system	11	10	318	158	12	21	9
Bright's disease and nephritis	7	3	390	227	11	12	18
Childbirth	2	------	72	35	1	6	2
Diseases of early infancy	1	1	221	102	13	12	5
Suicide	5	1	219	70	6	9	9
Other violence	20	19	436	206	65	30	25
All other causes	13	16	269	141	13	22	16
PROPORTION PER 1,000 TOTAL DEATHS.							
ALL CAUSES	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
Typhoid fever	31.9	20.1	9.8	9.0	21.0	6.5	15.6
Malarial fever	21.3	26.9	1.1	0.6	3.0	------	------
Smallpox	------	------	------	------	------	------	------
Measles	------	------	4.7	2.5	21.0	------	------
Scarlet fever	------	------	2.9	1.3	6.0	------	3.9
Whooping-cough	------	------	8.3	12.8	29.9	13.0	3.9
Diphtheria and croup	21.3	26.9	8.3	9.0	6.0	6.5	11.7
Influenza	5.3	13.4	0.8	1.3	3.0	------	------
Plague	------	------	------	0.3	------	------	------
Other epidemic diseases	5.3	------	4.6	2.8	------	------	------
Tuberculosis of lungs	143.6	147.7	109.8	111.8	122.7	107.1	50.8
Tuberculosis of other organs	5.3	6.7	23.9	22.1	------	22.7	35.2
Cancer	42.6	47.0	79.7	74.5	35.9	26.0	62.5
Other general diseases	47.9	20.1	39.8	35.5	27.0	45.4	43.0
Meningitis	10.6	------	11.1	15.3	9.0	22.7	11.7
Other diseases of nervous system	111.7	53.7	50.1	76.0	68.9	61.7	101.6
Diseases of circulatory system	143.6	187.9	189.6	194.4	116.8	191.6	144.5
Pneumonia and broncho-pneumonia	69.2	67.1	74.6	71.0	83.8	64.9	113.3
Other diseases of respiratory system	5.3	13.4	33.3	25.9	29.9	35.7	19.5
Diarrhea and enteritis, under 2 years	16.0	33.6	26.5	35.8	50.9	26.0	43.0
Diarrhea and enteritis, 2 years and over	5.3	------	8.1	5.6	3.0	6.5	7.8
Other diseases of digestive system	58.5	67.1	51.7	49.2	35.9	68.2	35.2
Bright's disease and nephritis	37.2	20.1	63.4	70.7	32.9	39.0	70.3
Childbirth	10.6	------	11.7	10.9	3.0	19.5	7.8
Diseases of early infancy	5.3	6.7	35.9	31.8	38.9	39.0	19.5
Suicide	26.6	6.7	35.6	21.8	18.0	29.2	35.1
Other violence	106.4	127.5	70.9	64.2	194.6	97.4	97.7
All other causes	69.2	107.4	43.8	43.9	38.9	71.4	62.5

1,000 Total Deaths, for Counties arranged Geographically: 1909—Continued.

California.

Coast Counties.					Interior Counties.							
Monterey.	San Benito....	San Luis Obispo ...	Santa Clara.....	Santa Cruz......	Alpine . . .	Amador	Calaveras . .	El Dorado..	Fresno	Inyo........	Kern	Kings ......
316	77	199	1,190	385	------	116	128	125	806	36	383	161
6	1	5	8	6	------	2	1	------	24	1	14	5
1	1	1	1	2	------	4	1	------	7	------	4	1
------	1	1	------	------	------	------	------	------	------	------	1	------
------	------	------	5	1	------	------	------	------	------	------	3	2
------	------	------	1	3	------	------	------	------	3	------	2	2
3	------	4	3	3	------	------	------	------	1	------	1	------
------	------	1	9	3	------	1	------	------	16	------	3	3
1	------	------	8	2	------	2	------	3	5	------	------	------
------	------	------	------	------	------	------	------	------	------	------	------	------
3	------	------	1	2	------	------	------	------	4	------	2	1
24	12	33	148	37	------	18	11	14	87	2	63	18
11	2	2	32	8	------	2	2	2	17	------	4	2
24	5	5	82	27	------	3	11	10	42	4	10	9
23	2	7	30	16	------	6	3	6	28	------	19	4
3	------	5	22	7	------	------	1	------	19	------	3	3
21	6	9	88	36	------	11	13	4	37	3	16	11
54	18	41	225	75	------	16	16	28	102	7	31	22
26	2	13	73	21	------	4	8	12	62	1	20	9
5	5	6	41	4	------	3	5	5	27	1	7	3
5	1	6	41	10	------	3	3	------	50	------	16	12
3	------	2	8	3	------	------	------	2	9	------	2	1
16	5	11	53	19	------	9	5	7	47	6	26	8
20	7	10	102	20	------	11	5	9	36	3	19	3
1	------	3	10	4	------	2	------	------	12	------	4	2
4	1	3	40	13	------	1	3	4	40	------	10	8
7	------	4	26	10	------	2	2	2	15	------	7	3
36	6	14	77	28	------	9	24	9	69	8	76	15
19	2	13	56	25	------	7	14	8	47	------	20	14
1000.0	1000.0	1000.0	1000.0	1000.0	------	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
19.0	13.0	25.1	6.7	15.6	------	17.3	7.8	------	29.8	27.8	36.6	31.1
3.2	13.0	5.0	0.8	5.2	------	34.5	7.8	------	8.7	------	10.5	6.2
------	13.0	5.0	------	------	------	------	------	------	------	------	2.6	------
------	------	------	4.2	2.6	------	------	------	------	------	------	7.8	12.4
------	------	------	0.8	7.8	------	------	------	------	3.7	------	5.2	12.4
9.5	------	20.1	2.5	7.8	------	------	------	------	1.2	------	2.6	------
------	------	5.0	7.6	7.8	------	8.6	------	------	19.9	------	7.8	18.6
3.2	------	------	6.7	5.2	------	17.2	------	24.0	6.2	------	------	------
------	------	------	------	------	------	------	------	------	------	------	------	------
9.5	------	------	0.8	5.2	------	------	------	------	5.0	------	5.2	6.2
75.9	155.8	165.8	124.4	96.1	------	155.2	86.0	112.0	107.9	55.6	164.5	111.8
34.8	26.0	10.1	26.9	20.8	------	17.2	15.6	16.0	21.1	------	10.5	12.4
75.9	64.9	25.1	68.9	70.1	------	25.9	85.9	80.0	52.1	111.1	26.1	55.9
72.8	26.0	35.2	25.2	41.6	------	51.7	23.4	48.0	34.8	------	49.6	24.9
9.5	------	25.1	18.5	18.2	------	------	7.8	------	23.6	------	7.8	18.6
66.5	77.9	45.2	74.0	93.5	------	94.8	101.6	32.0	45.9	83.3	41.8	68.3
170.9	233.8	206.0	189.1	194.8	------	137.9	125.0	224.0	126.5	194.4	80.9	136.7
82.3	26.0	65.3	61.3	54.5	------	34.5	62.5	96.0	76.9	27.8	52.2	55.9
15.8	64.9	30.2	34.5	10.4	------	25.9	39.1	40.0	33.5	27.8	18.3	18.6
15.8	13.0	30.2	34.5	26.0	------	25.9	23.4	------	62.0	------	41.8	74.6
9.5	------	10.0	6.7	7.8	------	------	------	16.0	11.2	------	5.2	6.2
50.6	64.9	55.3	44.5	49.3	------	77.6	39.1	56.0	58.3	166.7	67.9	49.7
63.3	90.9	50.3	85.7	51.9	------	94.8	39.1	72.0	44.7	83.3	49.6	18.6
3.2	------	15.1	8.4	10.4	------	17.2	------	------	14.9	------	10.5	12.4
12.7	13.0	15.1	33.6	33.8	------	8.6	23.4	32.0	49.6	------	26.1	49.7
22.1	------	20.1	21.9	26.0	------	17.2	15.6	16.0	18.6	------	18.3	18.6
113.9	77.9	70.4	64.7	72.7	------	77.6	187.5	72.0	85.6	222.2	198.4	93.2
60.1	26.0	65.3	47.1	64.9	------	60.4	109.4	64.0	58.3	------	52.2	87.0

TABLE 32.—*Deaths from Certain Principal Causes, with Proportion per*

CAUSE OF DEATH.	Central Califor					
	Interior Countie					
	Madera	Mariposa	Merced	Mono	Sacramento	San Joaquin
DEATHS.						
ALL CAUSES	73	48	116	7	1,100	911
Typhoid fever	2	2	1	------	34	17
Malarial fever	------	------	1	------	12	11
Smallpox	------	------	------	------	------	------
Measles	------	------	------	------	4	3
Scarlet fever	------	------	1	------	3	------
Whooping-cough	------	------	1	------	7	2
Diphtheria and croup	------	------	------	------	3	6
Influenza	------	------	------	------	1	1
Plague	------	------	------	------	------	------
Other epidemic diseases	------	------	------	------	7	3
Tuberculosis of lungs	7	3	16	------	13.8	12.3
Tuberculosis of other organs	1	------	------	------	21	11
Cancer	5	2	7	------	60	58
Other general diseases	4	2	5	------	50	31
Meningitis	2	1	1	------	21	14
Other diseases of nervous system	5	5	8	------	57	127
Diseases of circulatory system	10	5	10	1	131	146
Pneumonia and broncho-pneumonia	8	5	13	------	79	59
Other diseases of respiratory system	1	------	4	1	37	22
Diarrhea and enteritis, under 2 years	2	1	9	------	41	19
Diarrhea and enteritis, 2 years and over	1	------	2	------	11	20
Other diseases of digestive system	5	------	4	2	59	45
Bright's disease and nephritis	6	1	3	1	69	50
Childbirth	------	------	3	------	6	10
Diseases of early infancy	4	------	5	------	33	11
Suicide	------	------	3	------	32	12
Other violence	6	7	12	2	90	53
All other causes	4	14	7	------	99	57
PROPORTION PER 1,000 TOTAL DEATHS.						
ALL CAUSES	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
Typhoid fever	27.4	41.7	8.6	------	30.9	18.6
Malarial fever	------	------	8.6	------	10.9	12.1
Smallpox	------	------	------	------	------	------
Measles	------	------	------	------	3.6	3.3
Scarlet fever	------	------	8.6	------	2.7	------
Whooping-cough	------	------	8.6	------	6.4	2.2
Diphtheria and croup	------	------	------	------	2.7	6.6
Influenza	------	------	------	------	0.9	1.1
Plague	------	------	------	------	------	------
Other epidemic diseases	------	------	------	------	6.4	3.3
Tuberculosis of lungs	95.9	62.5	137.9	------	120.9	135.0
Tuberculosis of other organs	13.7	------	------	------	19.1	12.1
Cancer	68.5	41.7	60.4	------	54.6	63.7
Other general diseases	54.8	41.7	43.1	------	45.5	34.0
Meningitis	27.4	20.8	8.6	------	19.1	15.4
Other diseases of nervous system	68.5	104.2	69.0	------	51.8	139.4
Diseases of circulatory system	137.0	104.2	86.2	142.9	119.1	160.2
Pneumonia and broncho-pneumonia	109.5	104.1	112.1	------	71.8	64.8
Other diseases of respiratory system	13.7	------	34.5	142.9	33.6	24.1
Diarrhea and enteritis, under 2 years	27.4	20.8	77.6	------	37.3	20.8
Diarrhea and enteritis, 2 years and over	13.7	------	17.2	------	10.0	21.9
Other diseases of digestive system	68.5	------	34.5	285.7	53.6	49.4
Bright's disease and nephritis	82.2	20.8	25.9	142.8	62.7	54.9
Childbirth	------	------	25.9	------	5.5	11.0
Diseases of early infancy	54.8	------	43.1	------	30.0	12.1
Suicide	------	------	25.9	------	29.1	13.2
Other violence	82.2	145.8	103.4	285.7	81.8	58.2
All other causes	54.8	291.7	60.3	------	90.0	62.6

1,000 *Total Deaths, for Counties arranged Geographically: 1909—Continued.*

nia—Continued.					Southern California.							
—Continued.						Other Counties.						
Solano....	Stanislaus.	Tulare.....	Tuolumne.	Yolo........	Los Angeles.....	Imperial....	Orange......	Riverside...	San Bernardino	San Diego..	Santa Barbara....	Ventura....
348	197	291	134	194	6,392	40	355	435	902	751	347	218
4	6	10	7	2	69	1	8	13	25	-------	7	5
-------	1	2	-------	2	5	-------	-------	-------	-------	-------	3	-------
-------	-------	-------	-------	-------	2	-------	-------	-------	-------	-------	-------	-------
-------	-------	2	-------	-------	26	-------	1	4	2	1	-------	1
2	-------	1	-------	-------	15	1	8	1	1	-------	1	-------
1	1	-------	-------	2	38	-------	5	14	5	1	3	1
6	1	3	-------	3	36	-------	3	6	2	5	4	2
-------	1	2	5	2	9	1	2	1	-------	3	2	-------
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
1	-------	1	1	1	18	-------	2	2	2	1	2	2
38	29	31	13	11	1,133	6	37	96	228	100	29	31
3	5	1	-------	3	130	-------	12	16	20	17	6	5
12	6	15	5	10	433	1	17	18	32	43	20	13
20	12	6	6	7	256	1	10	13	30	32	11	3
5	-------	2	1	1	91	-------	10	6	5	6	5	1
44	11	26	11	22	496	3	30	31	121	70	31	17
60	39	34	17	33	911	2	52	48	81	138	56	28
21	12	18	12	8	381	3	21	22	60	59	16	9
5	4	11	3	7	146	-------	12	10	18	18	14	5
10	6	15	4	2	178	2	10	20	48	16	10	24
2	1	4	5	-------	63	2	5	2	4	10	3	1
14	12	15	4	12	347	1	15	21	28	43	16	6
20	8	14	4	13	446	1	23	21	30	39	17	13
3	-------	5	-------	1	50	2	5	2	7	1	7	4
15	7	8	-------	3	228	3	21	13	29	20	16	6
10	5	6	3	2	108	2	7	1	18	14	8	5
36	20	36	25	33	422	8	23	26	71	60	32	29
16	10	23	8	14	355	-------	21	28	35	54	28	7
1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
11.5	30.5	34.4	52.2	10.3	10.8	25.0	22.5	29.9	27.7	-------	20.2	22.9
-------	5.1	6.9	-------	10.3	0.8	-------	-------	-------	-------	-------	8.6	-------
-------	-------	-------	-------	-------	0.3	-------	-------	-------	-------	-------	-------	-------
-------	-------	6.9	-------	-------	4.1	-------	2.8	9.2	2.2	1.3	-------	4.6
5.8	-------	3.4	-------	-------	2.4	25.0	8.4	2.3	1.1	-------	2.9	-------
2.9	5.1	-------	-------	10.3	5.9	-------	14.1	32.2	5.5	1.3	8.6	4.6
17.2	5.1	10.3	-------	15.5	5.6	-------	8.4	13.8	2.2	6.7	11.5	9.2
-------	5.1	6.9	37.3	10.3	1.4	25.0	5.6	2.3	-------	4.0	5.8	-------
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
2.9	-------	3.4	7.5	5.2	2.8	-------	5.6	4.6	2.2	1.3	5.8	9.2
109.2	147.2	106.5	97.0	56.7	177.3	150.0	104.2	220.7	252.8	133.2	83.6	142.2
8.6	25.4	3.4	-------	15.5	20.3	-------	33.8	36.8	22.2	22.6	17.3	22.9
34.5	30.4	51.6	37.3	51.5	67.7	25.0	47.9	41.4	35.5	57.3	57.6	59.6
57.5	60.9	20.6	44.8	36.1	40.1	25.0	28.2	29.9	33.3	42.6	31.7	13.8
14.4	-------	6.9	7.5	5.2	14.2	-------	28.2	13.8	5.5	8.0	14.4	4.6
126.4	55.8	89.4	82.1	113.4	77.6	75.0	84.5	71.2	134.1	93.2	89.3	78.0
172.4	198.0	116.8	126.9	170.1	142.5	50.0	146.5	110.3	89.8	183.8	161.4	128.4
60.4	60.9	61.9	89.6	41.2	59.6	75.0	59.2	50.6	66.5	78.6	46.1	41.3
14.4	20.3	37.8	22.4	36.1	22.8	-------	33.8	23.0	20.0	24.0	40.4	22.9
28.7	30.4	51.6	29.8	10.3	27.9	50.0	28.2	46.0	53.2	21.3	28.8	110.1
5.7	5.1	13.7	37.3	-------	9.9	50.0	14.1	4.6	4.4	13.3	8.6	4.6
40.2	60.9	51.5	29.8	61.8	54.3	25.0	42.2	48.3	31.0	57.3	46.1	27.5
57.5	40.6	48.1	29.8	67.0	69.8	25.0	64.8	48.3	33.3	51.9	49.0	59.6
8.6	-------	17.2	-------	5.2	7.8	50.0	14.1	4.6	7.8	1.3	20.2	18.4
43.1	35.5	27.5	-------	15.4	35.7	75.0	59.2	29.9	32.2	26.6	46.1	27.5
28.7	25.4	20.6	22.4	10.3	16.9	50.0	19.7	2.3	20.0	18.6	23.1	23.0
103.4	101.5	123.7	186.6	170.1	66.0	200.0	64.8	59.7	78.7	79.9	92.2	133.0
46.0	50.8	79.0	59.7	72.2	55.5	-------	59.2	64.3	38.8	71.9	80.7	32.1

TABLE 33.—*Deaths Reported for Registration Districts (Cities, Towns, and Rural Parts of Counties): 1909 and 1908.*

[Cities or incorporated towns not reporting deaths omitted from table.]

Registration District.	Deaths:		Registration District.	Deaths:	
	1909.	1908.		1909.	1908.
CALIFORNIA	30,985	31,287			
Alameda County	3,210	3,305	Huntington Park	11	------
Rural	710	717	Inglewood	2	------
Alameda	309	345	Long Beach	235	219
Berkeley	405	448	Lordsburg	6	------
Emeryville	5	17	Los Angeles	4,018	3,752
Hayward	29	18	Monrovia	105	137
Livermore	37	41	Ocean Park	27	30
Oakland	1,642	1,646	Pasadena	410	373
Pleasanton	20	26	Pomona	129	127
San Leandro	53	47	Redondo Beach	23	27
Alpine County	------	4	San Pedro	87	59
Amador County	116	102	Santa Monica	103	110
Rural	57	66	Sawtelle	47	40
Jackson	59	36	Sierra Madre	37	27
Butte County	435	473	South Pasadena	33	27
Rural	260	307	Watts	15	7
Biggs	9	8	Whittier	45	53
Chico	82	84	Wilmington	4	9
Gridley	21	17	Madera County	73	60
Oroville	63	57	Marin County	308	276
Calaveras County	128	135	Rural	169	158
Colusa County	80	83	Belvedere	------	2
Rural	61	57	Larkspur	7	------
Colusa	19	26	Mill Valley	25	18
Contra Costa County	334	399	San Rafael	83	74
Rural	141	185	Sausalito	24	24
Antioch	19	29	Mariposa County	48	42
Black Diamond	17	13	Mendocino County	317	283
Concord	8	9	Rural	220	209
Martinez	57	77	Fort Bragg	56	36
Richmond	92	86	Point Arena	7	5
Del Norte County	31	38	Potter Valley	5	4
El Dorado County	125	132	Ukiah	29	29
Fresno County	806	970	Merced County	116	135
Rural	489	586	Rural	77	78
Fresno	288	365	Los Banos	10	21
Kingsburg	4	------	Merced	29	36
Selma	25	19	Modoc County	33	50
Glenn County	28	50	Rural	23	33
Rural	27	43	Alturas	10	17
Willows	1	7	Mono County	7	6
Humboldt County	334	362	Monterey County	316	293
Rural	150	154	Rural	106	113
Eureka	180	198	Monterey	82	76
Ferndale	4	10	Pacific Grove	60	41
Imperial County	40	75	Salinas	68	63
Rural	32	57	Napa County	518	489
Imperial	8	18	Rural	422	397
Inyo County	36	43	Calistoga	5	1
Rural	27	35	Napa	70	77
Bishop	9	8	St. Helena	21	14
Kern County	383	367	Nevada County	229	256
Rural	144	122	Rural	134	125
Bakersfield	198	193	Grass Valley	58	88
Kern	41	52	Nevada City	37	43
Kings County	161	179	Orange County	355	327
Rural	76	84	Rural	128	110
Hanford	76	76	Anaheim	46	44
Lemoore	9	19	Fullerton	33	36
Lake County	70	75	Orange	41	29
Rural	65	68	Santa Ana	107	108
Lakeport	5	7	Placer County	185	172
Lassen County	43	28	Rural	102	91
Los Angeles County	6,392	6,011	Auburn	44	47
Rural	989	843	Lincoln	17	2
Alhambra	38	42	Rocklin	15	32
Arcadia	1	------	Roseville	7	------
Azusa	18	19	Plumas County	79	105
Claremont	8	5	Riverside County	435	367
Compton	11	13	Rural	140	116
Covina	9	24	Corona	43	36
Glendale	35	33	Elsinore	6	5
Hermosa Beach	6	10	Riverside	238	204
Hollywood	40	25	San Jacinto	8	6

TABLE 33.—*Deaths Reported for Registration Districts (Cities, Towns, and Rural Parts of Counties): 1909 and 1908—Continued.*

[Cities or incorporated towns not reporting deaths omitted from table.]

Registration District.	Deaths:	
	1909.	1908.
Sacramento County	1,100	1,165
Rural	402	410
Sacramento	698	755
San Benito County	77	94
Rural	46	53
Hollister	24	33
San Juan	7	8
San Bernardino County	902	839
Rural	332	265
Colton	85	59
Ontario	69	52
Redlands	142	180
San Bernardino	250	262
Upland	24	21
San Diego County	751	846
Rural	91	73
Coronado	15	15
Escondido	10	14
National City	27	35
Oceanside	7	8
San Diego	601	701
San Francisco (city and county)	6,150	6,260
San Joaquin County	911	941
Rural	415	419
Lodi	41	41
Stockton	455	481
San Luis Obispo County	199	183
Rural	75	57
Paso de Robles	30	37
San Luis Obispo	94	89
San Mateo County	256	285
Rural	145	195
Burlingame	11	5
Redwood City	30	31
San Mateo	58	53
South San Francisco	17	1
Santa Barbara County	347	322
Rural	133	128
Lompoc	11	19
Santa Barbara	203	175
Santa Clara County	1,190	1,213
Rural	576	612
Alviso	--------	1
Gilroy	89	52
Los Gatos	49	31
Mayfield	26	22
Mountain View	14	9
Palo Alto	48	47
San Jose	336	389
Santa Clara	52	50
Santa Cruz County	385	348
Rural	81	69
Boulder Creek	11	9
Santa Cruz	190	167
Watsonville	103	103
Shasta County	310	334
Rural	256	244
Redding	54	90
Sierra County	30	56
Rural	30	49
Loyalton	--------	7
Siskiyou County	192	196
Rural	127	146
Dorris	1	------
Etna	9	------
Fort Jones	5	2
Montague	2	------
Yreka	48	48
Solano County	348	367
Rural	98	72
Benicia	35	30
Dixon	10	19
Fairfield	9	6
Rio Vista	5	10
Suisun	6	17
Vacaville	18	21
Vallejo	172	192
Sonoma County	611	649
Rural	339	364
Cloverdale	16	6
Healdsburg	42	47
Petaluma	83	82
Santa Rosa	105	107
Sebastopol	20	13
Sonoma	6	30
Stanislaus County	197	215
Rural	106	124
Modesto	57	60
Oakdale	25	20
Turlock	9	11
Sutter County	52	74
Rural	45	58
Yuba City	7	16
Tehama County	188	158
Rural	100	85
Corning	11	13
Red Bluff	76	60
Tehama	1	------
Trinity County	32	47
Tulare County	291	318
Rural	169	164
Porterville	27	60
Tulare	37	28
Visalia	58	66
Tuolumne County	134	138
Ventura County	218	207
Rural	27	29
Oxnard	78	56
San Buenaventura	79	77
Santa Paula	34	45
Yolo County	194	170
Rural	133	112
Winters	9	16
Woodland	52	42
Yuba County	149	170
Rural	36	34
Marysville	106	131
Wheatland	7	5

STATISTICS OF MARRIAGES: 1909 AND 1908.

SUMMARY.

Marriage Totals and Increase.—The marriages registered in California numbered 21,317 in 1906, 23,005 in 1907, 21,739 in 1908, and 22,917 in 1909, the small total for 1908 being due to leap year shyness and general business depression.

Following the increase of 1,688, or 7.9 per cent, for 1906 to 1907 came a decrease of 1,266, or 5.5 per cent, for 1907 to 1908 and then an increase of 1,178, or 5.4 per cent, for 1908 to 1909.

The marriage total for Northern and Central California together was 15,225 in 1909 against 14,919 in 1908, a gain of 366, or 2.3 per cent. The total for the counties south of Tehachapi was 7,662 in 1909 as compared with 6,820 in 1908, an increase of 824, or 12.3 per cent.

For 1908 to 1909 thirty-one counties showed increases in marriages, one no change, and twenty-six showed decreases.

The increases were above the State average, 5.4 per cent, in the following twenty-six counties: Alpine, Sierra, Plumas, Glenn, Orange, Kings, Shasta, Inyo, Mono, Imperial, Kern, Tulare, Marin, Sutter, Yuba, San Bernardino, Mendocino, Los Angeles, Tehama, Modoc, Placer, Tuolumne, San Mateo, San Diego, Amador, and Santa Cruz.

Marriage-Rates.—For an estimated midyear population of 2,306,001 in 1909 and 2,215,615 in 1908, the California marriage-rates are respectively 9.9 and 9.8.

The marriage-rates are higher for Southern California than for Northern and Central California. The rates are also higher for San Francisco and the other bay counties than for the rural counties north of Tehachapi.

Of the individual counties, Marin shows the highest marriage-rates, and Orange the next highest. The rates were also above the State averages for both 1909 and 1908 for the following counties: Sacramento, San Mateo, Santa Clara, San Luis Obispo, Santa Barbara, San Joaquin, Alameda, Los Angeles, and San Francisco.

General Marriage Statistics.—There were 16,863 marriages in 1909 and 16,120 in 1908, which were the first for both parties, the per cents being, respectively, 73.6 and 74.1, or a drop of 0.5 for 1909 in contrast with 1908.

The proportion of first marriages was considerably higher each year for San Francisco than for any other geographic division, though not as high as for certain small counties in the interior. The proportion of marriages where both parties were single is very low indeed, however, for Marin and San Mateo counties adjoining San Francisco, as well as for Orange adjoining Los Angeles.

In 1909 there were 2,409 marriages of single men with widows or divorcees, but only 1,826 marriages of single women with widowers or divorced men, the corresponding figures for 1908 being 2,305 and 1,624. Each year only a few counties showed exceptions to the rule that there are more unions of bachelors with widows than of maids with widowers.

In 1,819 cases, or 7.9 per cent of all, in 1909 and in 1,690, or 7.8 per cent, in 1908, the marriages were the second or over for both grooms and brides. Marriages where both parties were widowed or divorced occur less in the metropolis than in the suburbs, and less in the whole urban area than in sparsely settled rural counties.

In 1909 altogether 19,272, or 84.1 per cent, of the grooms were single, 2,072 widowed, and 1,573 divorced; in 1908 the single were 18,425, or 84.8 per cent, the widowed 2,026, and the divorced 1,288.

The single brides in 1909 numbered 18,689, or 81.6 per cent, the widowed 2,293, and the divorced 1,935; in 1908, 17,744, or 81.6 per cent were single, 2,317 widowed, and 1,678 divorced.

The widows outnumbered the widowers by 221, or 10.7 per cent, in 1909 and by 291, or 14.4 per cent, in 1908. Similarly, the divorcees remarrying outnumbered the divorced men by 362, or 23.0 per cent, in 1909 and by 390, or 30.3 per cent, in 1908.

The per cents widowed and divorced, both among grooms and brides, were greater each year for the counties south of Tehachapi than for those to the north.

More widowers, as well as widows, remarry in the country districts than in urban centers and, in the latter, more remarry in the suburbs than in the metropolis proper.

Divorced men and women likewise marry again considerably more in the surrounding suburbs than within the main city.

The high marriage-rates for suburban counties are largely due to the fact that these places are preferred by city couples, especially by divorced persons marrying once more.

Nativity of California Brides.—Of the 22,917 brides in 1909 only 468, or 2.0 per cent, were non-Caucasians, and of 21,739 in 1908 only 417, or 1.9 per cent, belonged to other than the white race, the white brides numbering 22,449 in 1909 and 21,322 in 1908.

Of the white brides in 1909, the single numbered 18,333, or 81.7 per cent; the widowed 2,218, or 9.9 per cent; and the divorced 1,898, or 8.4 per cent. In 1908, 17,443, or 81.8 per cent, were single; 2,238, or 10.5 per cent, widowed; and 1,641, or 7.7 per cent, divorced.

The white brides born in California numbered 9,133 in 1909 and 8,637 in 1908, and among them the per cents single were, respectively, 87.0 and 88.0; the per cents widowed, 6.0 and 5.7; and the per cents divorced, 7.0 and 6.3.

The brides born in other states totaled 9,043 in 1909 and 8,352 in in 1908, among whom the per cents for the single were, respectively, 76.5 and 76.2; for the widowed, 12.4 and 13.4; and for the divorced, 11.1 and 10.4.

There were 4,273 foreign born brides in 1909 and 4,333 in 1908, among whom the per cents single were, respectively, 81.1 and 80.3; the per cents widowed 12.9 and 14.4; and the per cents divorced, only 6.0 and 5.3.

The proportion of widows and divorcees among all white brides was somewhat greater each year for the counties south of Tehachapi than for those to the north.

Widows and divorcees, especially the former, remarry more in country districts than in urban centers, while both widows and divorcees remarry more in suburban counties, like Marin and San Mateo, than in San Francisco, the metropolis proper.

In each element of the population—Californian, other American, or foreign—more divorcees, as well as widows, remarry in the suburban territory than within the metropolis itself.

Among the white brides in 1909, 9,133, or 40.7 per cent were born in California; 9,043, or 40.3 per cent, in other states; and 4,273, or 19.0 per cent, in foreign countries. In 1908, the native daughters numbered 8,637, or 40.5 per cent; other Americans 8,352, or 39.2 per cent; and the foreign born 4,333, or 20.3 per cent.

In 1909 and 1908, respectively, the per cents born in California were 43.3 and 43.5 among the single white brides; 33.6 and 33.3 among the divorced; and 24.9 and 22.0 among the widowed. In all parts of the State the native daughters form the bulk of the single brides and a large proportion of the divorced, but a small proportion of the widowed.

In 1909 and 1908 the per cents born elsewhere in the United States than here were 52.9 and 52.8 among the divorced, and 50.4 and 50.2 among the widowed, against only 37.8 and 36.5 among the single white brides. In general, a larger proportion of the divorcees than of the widows remarrying in California were born elsewhere in the United States, while relatively few of the single brides here were born in other states.

The per cents foreign born in 1909 and 1908, respectively, were 24.7 and 27.8 among the widowed as compared with 18.9 and 20.0 among the single and only 13.5 and 13.9 among the divorced. Throughout California, as a rule, the proportion of foreign born brides is highest among the widowed, and next among the single, being very low indeed among the divorced.

While the bulk of the single brides were born in California, the great bulk of the divorcees were born elsewhere in the United States, and most of the widows were likewise born outside of California, either in other states or abroad. The proportion foreign born, though relatively great among widows, is especially small among divorcees, nearly all the divorced brides being natives of California or other states.

MARRIAGE TOTALS AND INCREASE.

The State.—The law of 1905, under which County Recorders make monthly returns of marriages to the State Bureau of Vital Statistics, has now been in operation for four whole calendar years, 1906 to 1909, inclusive. The marriage total (unlike the steadily rising birth total increasing with improved registration), has fluctuated up and down slightly in this period, much as the death total has done also. The figures for the State are as follows:

TABLE 1.—*Marriage Total Compared with Birth and Death Totals, for California: 1906 to 1909.*

	1909.	1908.	1907.	1906.
Marriages	22,917	21,739	23,005	21,317
Births	30,882	28,077	24,674	20,974
Deaths	30,985	31,287	31,095	29,303

Starting with 21,317 for 1906, the marriage total reached the maximum of 23,005 for 1907, dropping then to 21,739 for 1908, but rising again to 22,917 for 1909. The increase of 1,688, or 7.9 per cent, for 1906 to 1907 was followed by a decrease of 1,266, or 5.5 per cent, for 1907 to 1908, which was succeeded, however, by an increase of 1,178, or 5.4 per cent, for 1908 to 1909. The decreased marriage total for 1908 (leap year) may be ascribed both to the shyness of women concerning leap year proposals and to a general avoidance of matrimony during a period of hard times.

Geographic Divisions.—The following table gives the marriage totals for the several geographic divisions in the four years, 1906 to 1909, inclusive, together with the number and per cent of increase for 1908 to 1909:

TABLE 2.—*Marriage Totals, with Increase 1908 to 1909, for Geographic Divisions: 1906 to 1909.*

GEOGRAPHIC DIVISION.	Marriages.				Increase: 1908 to 1909.	
	1909.	1908.	1907.	1906.	Number.	Per Cent.
THE STATE	22,917	21,739	23,005	21,317	1,178	5.4
Northern California	2,081	2,057	2,278	2,077	24	1.2
Coast counties	989	1,052	1,168	1,047	63*	6.0*
Interior counties	1,092	1,005	1,110	1,030	87	8.7
Central California	13,174	12,862	13,450	12,573	312	2.4
San Francisco	4,214	4,035	4,158	3,589	179	4.4
Other bay counties	3,790	3,721	4,169	4,217	69	1.9
Coast counties	1,626	1,637	1,697	1,642	11*	0.7*
Interior counties	3,544	3,469	3,426	3,175	75	2.2
Southern California	7,662	6,820	7,277	6,667	842	12.3
Los Angeles	4,948	4,451	4,847	4,506	497	11.2
Other counties	2,714	2,369	2,430	2,161	345	14.6
Northern and Central California	15,255	14,919	15,728	14,650	336	2.3
Coast counties	10,619	10,445	11,192	10,445	174	1.7
Interior counties	4,636	4,474	4,536	4,205	162	3.6
Metropolitan area	8,004	7,756	8,327	7,756	248	3.2
Rural counties	7,251	7,163	7,401	6,894	88	1.2

*Decrease.

It will be observed from this table that the decrease in marriages for 1908, as compared with 1907, was general throughout the State, since every main and minor geographic division except one (interior counties of Central California) reported fewer marriages for 1908 than for 1907.

The increase for 1909 over 1908, on the other hand, was likewise general throughout the State, small decreases appearing only for the coast counties of Northern and of Central California.

The marriage total for Southern California was 7,662 in 1909 against 6,820 in 1908, an increase of 842, or 12.3 per cent, the rate of gain being 11.2 for Los Angeles and 14.6 for the other counties south of Tehachapi.

For Northern and Central California together, the marriage total was 15,225 in 1909 as compared with 14,919 in 1908, a gain of 336, or 2.3 per cent, the per cent of increase being 2.4 for Central California and 1.2 for Northern California. The rate of gain for the metropolitan area was 3.2, against only 1.2 for the rural counties north of Tehachapi. Similarly, the per cent of increase was no less than 4.4 for San Francisco, as compared with only 1.9 for the suburban counties.

Counties.—The table on the following page gives the increase (or decrease) of marriages for each county, as well as the per cent of increase for those showing gains in 1909 over 1908.

TABLE 3.—*Increase of Marriages, for Counties: 1908 to 1909.*

COUNTY.	Marriages.		Increase.	Decrease.	Per Cent of Increase.
	1909.	1908.			
CALIFORNIA	22,917	21,739	1,178	--------	5.4
Alameda	2,469	2,556	--------	87	--------
Alpine	1	--------	1	--------	--------
Amador	57	53	4	--------	7.5
Butte	193	198	--------	5	--------
Calaveras	30	37	--------	7	--------
Colusa	25	29	--------	4	--------
Contra Costa	164	174	--------	10	--------
Del Norte	20	28	--------	8	--------
El Dorado	43	46	--------	3	--------
Fresno	673	696	--------	23	--------
Glenn	34	24	10	--------	41.7
Humboldt	270	273	--------	3	--------
Imperial	77	63	14	--------	22.2
Inyo	37	29	8	--------	27.6
Kern	258	212	46	--------	21.7
Kings	199	145	54	--------	37.2
Lake	33	44	--------	11	--------
Lassen	30	37	--------	7	--------
Los Angeles	4,948	4,451	497	--------	11.2
Madera	57	75	--------	18	--------
Marin	852	710	142	--------	20.0
Mariposa	12	17	--------	5	--------
Mendocino	155	139	16	--------	11.5
Merced	88	87	1	--------	1.1
Modoc	44	40	4	--------	10.0
Mono	5	4	1	--------	25.0
Monterey	172	177	--------	5	--------
Napa	140	162	--------	22	--------
Nevada	95	111	--------	16	--------
Orange	871	620	251	--------	40.5
Placer	78	71	7	--------	9.9
Plumas	25	13	12	--------	92.3
Riverside	297	315	--------	18	--------
Sacramento	853	863	--------	10	--------
San Benito	49	59	--------	10	--------
San Bernardino	492	425	67	--------	15.8
San Diego	624	578	46	--------	8.0
San Francisco	4,214	4,035	179	--------	4.4
San Joaquin	522	521	1	--------	0.2
San Luis Obispo	206	211	--------	5	--------
San Mateo	305	281	24	--------	8.5
Santa Barbara	218	216	2	--------	0.9
Santa Clara	941	949	--------	8	--------
Santa Cruz	258	241	17	--------	7.1
Shasta	170	128	42	--------	32.8
Sierra	16	7	9	--------	128.6
Siskiyou	156	149	7	--------	4.7
Solano	152	159	--------	7	--------
Sonoma	363	398	--------	35	--------
Stanislaus	131	137	--------	6	--------
Sutter	30	25	5	--------	20.0
Tehama	106	96	10	--------	10.4
Trinity	8	8	--------	--------	--------
Tulare	276	227	49	--------	21.6
Tuolumne	61	56	5	--------	8.9
Ventura	135	152	--------	17	--------
Yolo	89	105	--------	16	--------
Yuba	90	77	13	--------	16.9

The table shows that there was one marriage in Alpine County in 1909, against none in 1908, a gain infinitely great, while Sierra and Plumas, likewise with small totals, showed per cents of increase of no less than 128.6 and 92.3, respectively.

The per cents of increase in marriages were next highest for the following counties: Glenn, 41.7; Orange, 40.5; Kings, 37.2; Shasta, 32.8;

Inyo, 27.6; Mono, 25.0; Imperial, 22.2; Kern, 21.7; Tulare, 21.6; Marin and Sutter, each 20.0; Yuba, 16.9; San Bernardino, 15.8; Mendocino, 11.5; Los Angeles, 11.2; Tehama, 10.4; Modoc, 10.0; Placer, 9.9; Tuolumne, 8.9; San Mateo, 8.5; San Diego, 8.0; Amador, 7.5; and Santa Cruz, 7.1. Each of these twenty-three counties shows a rate of gain above the average for the State, 5.4 per cent.

There were also increases in marriages, but at rates below the State average, in the following five counties arranged in descending order: Siskiyou, 4.7; San Francisco, 4.4; Merced, 1.1; Santa Barbara, 0.9; and San Joaquin, 0.2. For Trinity County exactly the same number of marriages were reported in 1909 as in 1908.

There were decreases in marriages for 1909 as compared with 1908 in the following twenty-six counties, arranged alphabetically: Alameda, Butte, Calaveras, Colusa, Contra Costa, Del Norte, El Dorado, Fresno, Humboldt, Lake, Lassen, Madera, Mariposa, Monterey, Napa, Nevada, Riverside, Sacramento, San Benito, San Luis Obispo, Santa Clara, Solano, Sonoma, Stanislaus, Ventura, and Yolo.

MARRIAGE-RATES.

Population Estimates.—With the publication of the Federal Census results for 1910, population estimates for preceding years can be revised with strict accuracy on the basis of county totals for June 1, 1900, and April 15, 1910, the estimates being made for the sake of uniformity as of July 1, or the middle of each year. The estimated midyear population for both 1908 and 1909 has been calculated on the assumption that the numerical increase (or decrease) was the same each month between June 1, 1900, and April 15, 1910. The average monthly increase is obtained by dividing the increase for the whole decade by 118.5 (the number of months between June 1, 1900, and April 15, 1910), and the total increase to July 1, 1908, is then got by multiplying by 97 (the number of months between June 1, 1900, and July 1, 1908), the increase to July 1, 1909, being obtained similarly by multiplying by 109 (the number of months between June 1, 1900, and July 1, 1909). The estimated midyear population for 1908 and 1909 is found, finally, by adding to the population enumerated June 1, 1900, the estimated increase to July 1, 1908 or 1909, as the case may be.*

Geographic Divisions.—For convenience in tabulation the fifty-eight counties of California have been grouped in three main and eight minor geographic divisions, shown in the table which follows, the counties in each group being arranged alphabetically for the sake of ready reference. Marriage-rates are also shown for the metropolitan area, comprising San Francisco and the other bay counties (Alameda, Contra Costa, Marin, and San Mateo), in contrast with the rural counties of Northern and Central California.

The following table gives the estimated midyear population, marriages, and marriage-rate per 1,000 population for the several counties arranged by geographic divisions in both 1909 and 1908:

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*The estimated midyear population for Alameda County, for instance, was obtained as follows:

Population enumerated April 15, 1910	246,131
Population enumerated June 1, 1900	130,197
Increase, June 1, 1900, to April 15, 1910 (118 5 months)	115,930
Increase, June 1, 1900, to July 1, 1909 (× 109 ÷ 118.5)	106 644
Increase, June 1, 1900, to July 1, 1908 (× 97 ÷ 118.5)	94,900
Estimated midyear population, 1909	236,837
Estimated midyear population, 1908	225 097

TABLE 4.—*Estimated Midyear Population, Marriages, and Marriage-rate per 1,000 Population, for Counties arranged Geographically: 1909 and 1908.*

COUNTY.	Estimated Midyear Population.		Marriages.		Marriage-rate per 1,000 Population.	
	1909.	1908.	1909.	1908.	1909.	1908.
THE STATE	2,306,001	2,215,615	22,917	21,739	9.9	9.8
Northern California	295,108	290,858	2,081	2,057	7.1	7.1
Coast counties	135,468	133,247	989	1,052	7.3	7.9
Del Norte	2,416	2,415	20	28	8.3	11.6
Humboldt	33,316	32,632	270	273	8.1	8.4
Lake	5,565	5,615	33	44	5.9	7.8
Mendocino	23,652	23,301	155	139	6.6	6.0
Napa	19,532	19,192	173	151	8.9	7.9
Sonoma	47,599	46,595	363	398	7.6	8.5
Trinity	3,388	3,497	8	8	2.4	2.3
Interior counties	159,640	157,611	1,092	1,005	6.8	6.4
Butte	26,485	25,458	193	198	7.3	7.8
Colusa	7,702	7,665	25	29	3.2	3.8
Glenn	7,010	6,805	34	24	4.9	3.5
Lassen	4,779	4,749	30	37	6.3	7.8
Modoc	6,102	5,989	44	40	7.2	6.7
Nevada	15,182	15,469	95	111	6.3	7.2
Placer	18,041	17,792	78	71	4.3	4.0
Plumas	5,211	5,150	25	13	4.8	2.5
Shasta	18,792	18,629	170	128	9.0	6.9
Sierra	4,092	4,083	16	7	3.9	1.7
Siskiyou	18,654	18,467	156	149	8.4	8.1
Sutter	6,293	6,248	30	25	4.8	4.0
Tehama	11,369	11,323	106	96	9.3	8.5
Yuba	9,928	9,784	90	77	9.1	7.9
Central California	1,295,427	1,254,567	13,174	12,862	10.2	10.3
San Francisco	410,969	403,462	4,214	4,035	10.3	10.0
Other bay counties	317,200	301,660	3,790	3,721	11.9	12.3
Alameda	236,837	225,097	2,469	2,556	10.4	11.4
Contra Costa	30,581	29,201	164	174	5.4	6.0
Marin	24,359	23,406	852	710	35.0	30.3
San Mateo	25,423	23,956	305	281	12.0	11.7
Coast counties	158,293	154,559	1,626	1,637	10.3	10.6
Monterey	23,764	23,281	172	177	7.2	7.6
San Benito	7,928	7,786	49	59	6.2	7.6
San Luis Obispo	19,163	18,885	206	211	10.7	11.2
Santa Clara	81,669	79,307	941	949	11.5	12.0
Santa Cruz	25,769	25,300	258	241	10.0	9.5
Interior counties	408,965	394,886	3,544	3,469	8.7	8.8
Alpine	325	345	1	-------	3.1	------
Amador	9,249	9,454	57	53	6.2	5.6
Calaveras	9,334	9,539	30	37	3.2	3.9
El Dorado	7,612	7,763	43	46	5.6	5.9
Fresno	72,627	68,800	673	696	9.3	10.1
Inyo	6,766	6,503	37	29	5.5	4.5
Kern	36,013	33,862	258	212	7.2	6.3
Kings	15,720	15,076	199	145	12.7	9.6
Madera	8,207	8,004	57	75	6.9	9.4
Mariposa	4,017	4,095	12	17	3.0	4.2
Merced	14,672	14,072	88	87	6.0	6.2
Mono	2,052	2,065	5	4	2.4	1.9
Sacramento	66,051	63,834	853	863	12.9	13.5
San Joaquin	49,506	47,959	522	521	10.5	10.9
Solano	27,285	26,939	152	159	5.6	5.9
Stanislaus	21,482	20,108	131	137	6.1	6.8
Tulare	34,072	32,344	276	227	8.1	7.0
Tuolumne	10,074	10,194	61	56	6.1	5.5
Yolo	13,901	13,870	89	105	6.4	7.6
Southern California	715,466	670,190	7,662	6,820	10.7	10.2
Los Angeles	477,368	443,562	4,948	4,451	10.4	10.0
Other counties	238,098	226,628	2,714	2,369	11.4	10.5
Imperial	13,039	12,302	77	63	5.9	5.1
Orange	33,254	31,762	871	620	26.2	19.5
Riverside	33,349	31,648	297	315	8.9	10.0
San Bernardino	54,399	51,485	492	425	9.0	8.3
San Diego	58,997	55,666	624	578	10.6	10.4
Santa Barbara	27,032	26,141	218	216	8.1	8.3
Ventura	18,028	17,624	135	152	7.5	8.6
Northern and Central California	1,590,535	1,545,425	15,255	14,919	9.6	9.7
Coast counties	1,021,930	992,928	10,619	10,445	10.4	10.5
Interior counties	568,605	552,497	4,636	4,474	8.2	8.1
Metropolitan area	728,169	705,122	8,004	7,756	11.0	11.0
Rural counties	862,366	840,303	7,251	7,163	8.4	8.5

For an estimated midyear population of 2,306,001 in 1909, the 22,917 marriages registered in California give a marriage-rate of 9.9 per 1,000 inhabitants, while for an estimated midyear population of 2,215,615 in 1908, the 21,739 marriages in the State represent a rate of 9.8 per 1,000 population.

It may be added that for an estimated midyear population of 2,215,615 in 1907, the 23,005 marriages give a rate of 10.8, while for an estimated midyear population of 2,034,861 in 1906, the 21,317 marriages give a rate of 10.5.

The marriage-rates are somewhat higher for the counties south of Tehachapi than for those to the north, being 10.7 and 10.2 for Southern California against 9.6 and 9.7 for Northern and Central California together in 1909 and 1908, respectively. The marriage-rates for Central California were 10.2 and 10.3 in 1909 and 1908, respectively, while for Northern California the marriage-rate was 7.1 each year. In both 1909 and 1908 the rate was higher for the coast counties than for the interior counties. The rates were also higher each year for the metropolitan area, comprising San Francisco and the other bay counties, 11.0 each year, than for the rural counties north of Tehachapi, 8.4 for 1909 and 8.5 for 1908.

The rates were 10.4 and 10.0 for Los Angeles County in 1909 and 1908, and, respectively, 11.4 and 10.5 for the rest of Southern California. The other minor geographic divisions with rates above the State averages of 9.9 and 9.8 for 1909 and 1908, respectively, are as follows: San Francisco, 10.3 and 10.0; the other bay counties, 11.9 and 12.3; and the adjoining coast counties of Central California, 10.3 and 10.6.

Counties.—Among the individual counties, Marin, adjoining San Francisco, shows the highest marriage-rates, 35.0 in 1909 and 30.3 in 1908, and Orange, adjoining Los Angeles, shows the next highest rates, 26.2 and 19.5 for 1909 and 1908, respectively. The marriage-rates are also notably high for the following counties: Sacramento, 12.9 and 13.5 in 1909 and 1908, respectively; San Mateo, 12.0 and 11.7; Santa Clara, 11.5 and 12.0; San Luis Obispo, 10.7 and 11.2; Santa Barbara, 10.6 and 10.4; San Joaquin, 10.5 and 10.9; Alameda, 10.4 and 11.4; Los Angeles, 10.4 and 10.0; and San Francisco, 10.3 and 10.0. These are the counties with marriage-rates above the State averages, 9.9 for 1909, and 9.8 for 1908. The rates were also above the State average of 9.9 for 1909 alone for Kings, 12.7 (but only 9.6 in 1908), and for Santa Cruz, 10.0 (but only 9.5 in 1908). The rates were likewise above the State average of 9.8 for 1908 alone for Del Norte, 11.6 (but only 8.3 in 1909); Fresno, 10.1 (but only 9.3 in 1909); and Riverside, 10.0 (but only 8.9 in 1909). The counties named comprise all those for which the marriage-rate was at least 10.0 per 1,000 population for one or both of the years 1909 and 1908.

The counties mentioned as having high marriage-rates will be recognized generally as counties having large cities. Inspection of the table also shows that in each geographic division the counties with the highest rates for the particular group are counties containing important cities or towns. Moreover, the marriage-rates are higher for the metropolitan area than for the rural counties north of Tehachapi. It seems, therefore, that there is a strong tendency for marriageable persons living in the country to go to an urban center to be married; if not to the metropolis itself, then to the largest city accessible for a satisfactory celebration of the event.

On the other hand, there is a counter movement by which couples living in metropolitan centers like San Francisco or Los Angeles select for their place of marriage not the metropolis proper, but instead a suburban city or town. This is shown by the very great proportion of marriages to resident inhabitants for Marin and San Mateo counties in the suburbs of San Francisco and for Orange County, adjoining Los Angeles. In short, country swains like to celebrate marriage in large cities, while couples belonging to a metropolis are apt to prefer the suburbs.

GENERAL MARRIAGE STATISTICS.

Number in Order.—The table on the following page shows the number in order of marriages, with per cents, for the three main and eight minor geographic divisions, as well as certain other groups of counties, in both 1909 and 1908. Similar figures for individual counties, arranged alphabetically, may be found in Tables 13 and 14, pages 180 to 182.

TABLE 5.—*Marriages classified by Number in Order, with Per Cents, for Geographic Divisions: 1909 and 1908.*

GEOGRAPHIC DIVISION.	Total Marriages.	Number of Marriage.				Per Cent of Marriages.			
		First of Both Parties.	First of Groom Only.	First of Bride Only.	Second or Over of Both.	First of Both Parties.	First of Groom Only.	First of Bride Only.	Second or Over of Both.
1909.									
THE STATE	22,917	16,863	2,409	1,826	1,819	73.6	10.5	8.0	7.9
Northern California	2,081	1,544	247	135	155	74.2	11.9	6.5	7.4
Coast counties	989	746	111	66	66	75.4	11.2	6.7	6.7
Interior counties	1,092	798	136	69	89	73.1	12.5	6.3	8.1
Central California	13,174	9,894	1,356	1,004	920	75.1	10.3	7.6	7.0
San Francisco	4,214	3,303	406	272	233	78.4	9.6	6.5	5.5
Other bay counties	3,790	2,727	416	325	322	71.9	11.0	8.6	8.5
Coast counties	1,626	1,197	158	149	122	73.6	9.7	9.2	7.5
Interior counties	3,544	2,667	376	258	243	75.2	10.6	7.3	6.9
Southern California	7,662	5,425	806	687	744	70.8	10.5	9.0	9.7
Los Angeles	4,948	3,587	492	422	447	72.5	10.0	8.5	9.0
Other counties	2,714	1,838	314	265	297	67.7	11.6	9.8	10.9
Northern and Central California	15,255	11,438	1,603	1,139	1,075	75.0	10.5	7.5	7.0
Coast counties	10,619	7,973	1,091	812	743	75.1	10.3	7.6	7.0
Interior counties	4,636	3,465	512	327	332	74.7	11.0	7.1	7.2
Metropolitan area	8,004	6,030	822	597	555	75.3	10.3	7.5	6.9
Rural counties	7,251	5,408	781	542	520	74.6	10.7	7.5	7.2
1908.									
THE STATE	21,739	16,120	2,305	1,624	1,690	74.1	10.6	7.5	7.8
Northern California	2,057	1,588	212	113	144	77.2	10.3	5.5	7.0
Coast counties	1,052	816	97	60	79	77.6	9.2	5.7	7.5
Interior counties	1,005	772	115	53	65	76.8	11.4	5.3	6.5
Central California	12,862	9,688	1,376	923	875	75.3	10.7	7.2	6.8
San Francisco	4,035	3,165	414	264	192	78.4	10.3	6.5	4.8
Other bay counties	3,721	2,685	434	316	286	72.1	11.7	8.5	7.7
Coast counties	1,637	1,225	157	121	134	74.8	9.6	7.4	8.2
Interior counties	3,469	2,613	371	222	263	75.3	10.7	6.4	7.6
Southern California	6,820	4,844	717	588	671	71.0	10.5	8.6	9.9
Los Angeles	4,451	3,203	444	379	425	72.0	10.0	8.5	9.5
Other counties	2,369	1,641	273	209	246	69.3	11.5	8.8	10.4
Northern and Central California	14,919	11,276	1,588	1,036	1,019	75.6	10.6	7.0	6.8
Coast counties	10,445	7,891	1,102	761	691	75.5	10.6	7.3	6.6
Interior counties	4,474	3,385	486	275	328	75.7	10.9	6.1	7.3
Metropolitan area	7,756	5,850	848	580	478	75.4	10.9	7.5	6.2
Rural counties	7,163	5,426	740	456	541	75.7	10.3	6.4	7.6

It appears from Table 5 that of 22,917 marriages in 1909, 16,863 were first marriages for both parties; 2,409 were first marriages for the grooms only; 1,826 were first marriages for the brides only; and 1,819 were second marriages or over for both grooms and brides. Of 21,739 marriages in 1908, there were 16,120 in which neither party had been married before; 2,305 where only the grooms were single; 1,624 where only the brides were single; and 1,690 where both grooms and brides were widowed or divorced.

The per cent of marriages which were the first for both parties was 73.6 in 1909 as compared with 74.1 in 1908, a drop of 0.5 in the per cent of first marriages. The per cent of marriages which were the first for the grooms only was 10.5 in 1909 against 10.6 in 1908, a drop of 0.1 in the per cent for grooms. On the other hand, the per cent of marriages which were the first for the brides only was 8.0 in 1909 as compared with only 7.5 in 1908, a rise of 0.5 in the per cent for brides. The per cent of marriages which were the second or over for both grooms and brides was 7.9 in 1909 against 7.8 in 1908, a rise of 0.1 in the per cent of second marriages or over. In short, for 1909, as compared with 1908, there was a loss in the proportion of marriages where both parties were single and in the proportion where only the grooms were single, while, on the other hand, there was a notable rise in the proportion of marriages where only the brides were single and a small gain in the proportion where both parties had been married before.

The per cent of first marriages for both parties was much higher each year for the counties north of Tehachapi, 75.0 in 1909 and 75.6 in 1908, than for Southern California, 70.8 and 71.0, respectively. The per cents for Northern California were 74.2 and 77.2, and for Central California were 75.1 and 75.3 in 1909 and 1908, respectively.

The per cents of first marriages are not far from the same for the metropolitan area as for the rural counties north of Tehachapi, being 75.3 and 75.4 for the former against 74.6 and 75.7 for the latter in 1909 and 1908, respectively. Within the metropolitan area, however, there are wide differences between the per cents for San Francisco and for the other bay counties, the per cent for the metropolis proper being no less than 78.4 each year (or the highest among geographic divisions), but only 71.9 in 1909 and 72.1 in 1908 for the group of suburban counties (Alameda, Contra Costa, Marin, and San Mateo). Similarly, the per cents of first marriages were 72.5 and 72.0 for Los Angeles in 1909 and 1908, but as low as 67.7 and 69.3 for the other counties south of Tehachapi.

The proportion of marriages which were the first for both parties is very high for certain small counties. Thus, both parties were single in the 1 marriage in Alpine County in 1909 and in each of the 7 in Sierra in 1908, while the per cent of first marriages was also very high in 1909 for Colusa (96.0) and for Lassen (90.0).

The per cents of first marriages, on the other hand, are very low indeed for individual counties adjoining San Francisco and Los Angeles. Thus, for counties adjoining San Francisco, the per cents were only 67.9 and 67.6 for San Mateo in 1909 and 1908, and as low as 65.7 and 64.5 respectively, for Marin. Likewise, the per cents of first marriages for Orange County, adjoining Los Angeles, were only 64.2 in 1909 and 64.5 in 1908. There are only a few other counties in the State where in 1909 or 1908 less than 70.0 per cent of the marriages were first marriages for both parties, the additional counties in 1909 being Del Norte, Imperial, Placer, San Bernardino, San Diego, Shasta, Siskiyou, and Trinity, and in 1908, El Dorado, Inyo, Monterey, Plumas, San Diego, and Yuba.

In 1909 there were 2,409 marriages, which were the first for only the grooms, as compared with only 1,826, which were the first for only the brides. Similarly, in 1908, the first marriages for only the grooms numbered 2,305 against only 1,624 for the first marriages of the brides alone. The excess of first marriages of grooms only over first marriages of brides only was 583, or 31.9 per cent, in 1909, and 681, or 41.9 per cent, in 1908. In other words, the number of single men marrying widowed or divorced women is greater by from three tenths to four tenths, or roughly speaking, about one third, than the number of single women marrying widowed or divorced men. No main or minor geographic division of California shows any departure from this rule, that there are more unions of bachelors with widows than of maids with widowers. In fact, there were exceptions to the rule, and only slight exceptions at that, for only nine of the whole fifty-eight counties in either 1909 or 1908, the nine for 1909 being Amador, Fresno, Glenn, Inyo, Placer, Riverside, San Benito, Santa Cruz, and Tuolumne, and the nine for 1908 being Fresno, Glenn, Lassen, Merced, Mono, Santa Barbara, Solano, Stanislaus, and Ventura. In Imperial in 1909 and in Lake, San Luis Obispo, and Trinity in 1908 there were exactly the same number of marriages where only the grooms were single as where only the brides were single. But in all the remaining counties of the State the rule holds good that there are more marriages between bachelors and widows than between maidens and widowers.

The per cent of marriages which were the second or over for both grooms and brides (7.9 per cent for the State in 1909 against 7.8 per cent for 1908) is higher for Southern California than for Northern and Central California. The per cents in 1909 and 1908, respectively, were 9.7 and 9.9 for the counties south of Tehachapi as compared with 7.0 and 6.8 for those to the north, being 7.4 and 7.0 for Northern California alone and 7.0 and 6.8 for Central California alone. The per cent of marriages where both parties were widowed or divorced was highest of all each year for the counties of Southern California other than Los Angeles, 10.9 in 1909 and 10.4 in 1908, against 9.0 and 9.5, respectively, for Los Angeles alone. In Northern and Central California the per cents for the rural counties were 7.2 and 7.6 in 1909 and 1908 as compared with 6.9 and 6.2, respectively, for the metropolitan area. Within the metropolitan area, moreover, the per cents were no less than 8.5 in 1909 and 7.7 in 1908 for the suburban counties against only 5.5 and 4.8, respectively, or the lowest of all each year, for San Francisco alone. Marriages between widowed or divorced men and women occur less in San Francisco than in the suburbs and less in an urban center like San Francisco or Los Angeles than in sparsely settled rural districts. Thus, the counties in which at least one tenth of the marriages were between widowers and widows were in 1909 Calaveras, Del Norte, Imperial, Madera, Marin, Orange, Placer, San Bernardino, San Diego, San Mateo, and Shasta, and in 1908 Colusa, Inyo, Madera, Monterey, Orange, San Bernardino, San Diego, and Tuolumne.

Status of Grooms.—The table which follows gives for each geographic division in 1909 and 1908 the civil status or marital condition of the grooms—whether single, widowed, or divorced—at the time of marriage:

TABLE 6.—*Grooms classified by Marital Condition, with Per Cents, for Geographic Divisions: 1909 and 1908.*

GEOGRAPHIC DIVISION.	Grooms.				Per Cent.		
	Total.	Single.	Widowed.	Divorced.	Single.	Widowed.	Divorced.
1909.							
THE STATE	22,917	19,272	2,072	1,573	84.1	9.0	6.9
Northern California	2,081	1,791	173	117	86.1	8.3	5.6
Coast counties	989	857	76	56	86.6	7.7	5.7
Interior counties	1,092	934	97	61	85.5	8.9	5.6
Central California	13,174	11,250	1,060	864	85.4	8.0	6.6
San Francisco	4,214	3,709	293	212	88.0	7.0	5.0
Other bay counties	3,790	3,143	329	318	82.9	8.7	8.4
Coast counties	1,626	1,355	156	115	83.3	9.6	7.1
Interior counties	3,544	3,043	282	219	85.9	7.9	6.2
Southern California	7,662	6,231	839	592	81.3	11.0	7.7
Los Angeles	4,948	4,079	527	342	82.4	10.7	6.9
Other counties	2,714	2,152	312	250	79.3	11.5	9.2
Northern and Central California	15,255	13,041	1,233	981	85.5	8.1	6.4
Coast counties	10,619	9,064	854	701	85.4	8.0	6.6
Interior counties	4.636	3,977	379	280	85.8	8.2	6.0
Metropolitan area	8,004	6,852	622	530	85.6	7.8	6.6
Rural counties	7,251	6,189	611	451	85.4	8.4	6.2
1908.							
THE STATE	21,739	18,425	2,026	1,288	84.8	9.3	5.9
Northern California	2,057	1,800	168	89	87.5	8.2	4.3
Coast counties	1,052	913	85	54	86.8	8.1	5.1
Interior counties	1,005	887	83	35	88.2	8.3	3.5
Central California	12,862	11,064	1,052	746	86.0	8.2	5.8
San Francisco	4,035	3,579	278	183	88.7	6.8	4.5
Other bay counties	3,721	3,119	331	271	83.8	8.9	7.3
Coast counties	1,637	1,382	153	102	84.4	9.4	6.2
Interior counties	3,469	2,984	295	190	86.0	8.5	5.5
Southern California	6,820	5,561	806	453	81.5	11.8	6.7
Los Angeles	4,451	3,647	532	272	81.9	12.0	6.1
Other counties	2,369	1,914	274	181	80.8	11.6	7.6
Northern and Central California	14,919	12,864	1,220	835	86.2	8.2	5.6
Coast counties	10,445	8,993	842	610	86.1	8.1	5.8
Interior counties	4,474	3,871	378	225	86.5	8.5	5.0
Metropolitan area	7,756	6,698	604	454	86.4	7.8	5.8
Rural counties	7,163	6,166	616	381	86.1	8.6	5.3

The table shows that of 22,917 grooms in 1909, 19,272, or 84.1 per cent, were single; 2,072, or 9.0 per cent, were widowed; and 1,573, or 6.9 per cent, were divorced. Of the 21,739 grooms in 1908, the single were 18,425, or 84.8 per cent; the widowed 2,026, or 9.3 per cent; and the divorced 1,288, or 5.9 per cent. There was a decrease of 0.7 in the per cent single for 1909 as compared with 1908 and a decrease of 0.3 in the per cent widowed, while on the other hand there was an increase of 1.0 in the per cent divorced.

Relatively more grooms were single in Northern and Central California than in Southern California. The per cent single for the counties north of Tehachapi was 85.5 in 1909 and 86.2 in 1908, while for the counties to the south the per cents were only 81.3 and 81.5, respectively. There is comparatively little difference between the per cents for the metropolitan area and for the rural counties of Northern and Central California, the per cents differing by only 0.2 (85.6 against 85.4) in 1909 and by 0.3 (86.4 against 86.1) in 1908. However, there are wide differences in the metropolitan area between the per cents for San Francisco and the other bay counties. The per cent of single grooms in the metropolis proper was 88.0 in 1909 and 88.7 in 1908, these being the maximum per cents among geographic divisions, while for the suburban counties the per cents were, respectively, 82.9 and 83.8, or the lowest outside Southern California. The per cents single were 82.4 and 81.9 for Los Angeles in 1909 and 1908, but only 79.3 and 80.8, respectively, for the other counties south of Tehachapi.

The individual counties in which at least 90.0 per cent of the grooms were single were (in 1909) Alpine, Butte, Calaveras, Colusa, El Dorado, Humboldt, Lake, Lassen, Mariposa, Modoc, Mono, Plumas, and Sutter, and (in 1908) Amador, Contra Costa, Del Norte, Kings, Lassen, Modoc, Nevada, Plumas, Sierra, and Sutter. On the other hand, those in which only 80.0 per cent or less of the grooms were single were Del Norte, Imperial, Marin, Orange, Placer, San Bernardino, San Diego, and Shasta in 1909, and Inyo, Mono, Orange, and San Diego in 1908.

The proportion of widowers among the grooms is much greater for Southern California than for Northern or Central California. The per cent widowed for the counties south of Tehachapi was 11.0 in 1909 and 11.8 in 1908 as compared with only 8.1 and 8.2, respectively, for the counties to the north. The per cents were 10.7 and 12.0 for Los Angeles, and 11.5 and 11.6 for the other counties south of Tehachapi in 1909 and 1908, respectively. North of Tehachapi, the per cents were only 7.8 each year for the metropolitan area against 8.4 in 1909 and 8.6 in 1908 for the rural counties. Within the metropolitan area, moreover, the per cents were only 7.0 and 6.8 for the metropolis proper as compared with 8.7 and 8.9 for the suburban counties. Generally speaking, more widowers remarry in the rural counties than in metropolitan centers, and in the metropolitan district more remarry in the suburbs than in the main city.

The counties in which widowers formed at least one tenth (10.0 per cent) of all grooms in 1909 were: Del Norte, Glenn, Placer, Santa Clara, Santa Cruz, Shasta, Siskiyou, Tehama, Trinity, and Tuolumne, north of Tehachapi; and Imperial, Los Angeles, Riverside, San Bernardino, San Diego, and Santa Barbara, in Southern California. In 1908 the counties in which 10.0 per cent or more of the grooms were widowers were: Colusa, El Dorado, Glenn, Inyo, Kern, Merced, Mono, Monterey, Napa, Placer, Santa Cruz, Tehama, Tuolumne, and Yuba, in Northern and Central California; and Los Angeles, Orange, San Diego, Santa Barbara, and Ventura, south of Tehachapi.

The proportion of divorced grooms, as of the widowed, is greater for the counties south of Tehachapi than for those to the north The per cents divorced in 1909 and 1908, respectively, were 7.7 and 6.7 for Southern California as compared with 6.6 and 5.8 for Central California and 5.6 and 4.3 for Northern California, or 6.4 and 5.6 for both together The per cents were 6.9 and 6.1 for Los Angeles in 1909 and 1908 against 9.2 and 7.6, respectively, for the other counties of Southern California. North of Tehachapi, on the other hand, the per cents divorced are greater for the metropolitan area than for the rural counties, being 6.6 and 5.8 for the former against 6.2 and 5.3 for the latter. Within the metropolitan area, however, the per cents divorced are much less for San Francisco than for the suburbs, being only 5.0 and 4.5 for the metropolis proper as compared with 8.4 and 7.3 for the other bay counties. While more divorced men remarry in the metropolitan area than in the rural districts, not nearly so many remarry in the main city as in the surrounding suburbs.

The individual counties in which at least 7.5 per cent of the grooms were divorced were (in 1909) Del Norte, Imperial, Inyo, Marin, Monterey, Napa, Orange, Placer, Sacramento, San Bernardino, San Diego, San Mateo, Shasta, and Tehama, and (in 1908) Inyo, Marin, Orange, San Benito, San Bernardino, and Trinity. The per cent of divorced grooms was notably high each year for Orange (12.5 in 1909 and 10.2 in 1908) and for Marin (11.9 and 10.0), as well as for San Mateo in 1909 alone (10.5), these being counties adjacent to Los Angeles and San Francisco, respectively.

Status of Brides.—The following table shows for the several geographic divisions in 1909 and 1908 the civil status or marital condition of the brides—whether single, widowed, or divorced—on the wedding day:

TABLE 7.—*Brides classified by Marital Condition, with Per Cents, for Geographic Divisions: 1909 and 1908.*

GEOGRAPHIC DIVISION.	Grooms.				Per Cent.		
	Total.	Single.	Widowed.	Divorced.	Single.	Widowed.	Divorced.
1909.							
THE STATE	22,917	18,689	2,293	1,935	81.6	10.0	8.4
Northern California	2,081	1,679	218	184	80.7	10.5	8.8
Coast counties	989	812	94	82	82.1	9.5	8.4
Interior counties	1,092	867	124	101	79.4	11.4	9.2
Central California	13,174	10,898	1,188	1,088	82.7	9.0	8.3
San Francisco	4,214	3,575	351	288	84.9	8.3	6.8
Other bay counties	3,790	3,052	364	374	80.5	9.6	9.9
Coast counties	1,626	1,346	133	147	82.8	8.2	9.0
Interior counties	3,544	2,925	340	279	82.5	9.6	7.9
Southern California	7,662	6,112	887	663	79.8	11.6	8.6
Los Angeles	4,948	4,009	553	386	81.0	11.2	7.8
Other counties	2,714	2,103	334	277	77.5	12.3	10.2
Northern and Central California	15,255	12,577	1,406	1,272	82.5	9.2	8.3
Coast counties	10,619	8,785	942	892	82.7	8.9	8.4
Interior counties	4,636	3,792	464	380	81.8	10.0	8.2
Metropolitan area	8,004	6,627	715	662	82.8	8.9	8.3
Rural counties	7,251	5,950	691	610	82.1	9.5	8.4
1908.							
THE STATE	21,739	17,744	2,317	1,678	81.6	10.7	7.7
Northern California	2,057	1,701	215	141	82.7	10.4	6.9
Coast counties	1,052	876	109	67	83.3	10.3	6.4
Interior counties	1,005	825	106	74	82.1	10.5	7.4
Central California	12,862	10,611	1,253	998	82.5	9.7	7.8
San Francisco	4,035	3,429	355	251	85.0	8.8	6.2
Other bay counties	3,721	3,001	383	337	80.6	10.3	9.1
Coast counties	1,637	1,346	160	131	82.2	9.8	8.0
Interior counties	3,469	2,835	355	279	81.7	10.2	8.1
Southern California	6,820	5,432	849	539	79.6	12.5	7.9
Los Angeles	4,451	3,582	541	328	80.5	12.1	7.4
Other counties	2,369	1,850	308	211	78.1	13.0	8.9
Northern and Central California	14,919	12,312	1,468	1,139	82.5	9.9	7.6
Coast counties	10,445	8,652	1,007	786	82.8	9.7	7.5
Interior counties	4,474	3,660	461	353	81.8	10.3	7.9
Metropolitan area	7,756	6,430	738	588	82.9	9.5	7.6
Rural counties	7,163	5,882	730	551	82.1	10.2	7.7

It appears from this table that of 22,917 brides in 1909, the single numbered 18,689, or 81.6 per cent; the widowed 2,293, or 10.0 per cent; and the divorced 1,935, or 8.4 per cent. Of the 21,739 brides in 1908, 17,744, or 81.6 per cent, were single; 2,317, or 10.7 per cent, were widowed; and 1,678, or 7.7 per cent, were divorced. The per cent single was exactly the same each year, but for 1909 as compared with 1908 there was a drop of 0.7 in the per cent widowed and a rise of 0.7 in the per cent divorced.

It may be noted that in 1909 the widowed grooms numbered only 2,072 against 2,293 for the brides, and that in 1908 the widowers totaled 2,026 and the widows 2,317. That is, the widows outnumbered the widowers by 221, or 10.7 per cent, in 1909 and by 291, or 14.4 per cent, in 1908. In 1909 the divorced grooms numbered only 1,573 and the brides 1,935, while in 1908, similarly, the divorced men remarrying totaled 1,288 and the women 1,678. In other words, the number of divorced women remarrying exceeded that of divorced men by 362, or 23.0 per cent, in 1909 and by 390, or 30.3 per cent, in 1908.

Relatively more brides were single in the counties north of Tehachapi than in those to the south. The per cent single among brides was 82.5 each year for Northern and Central California together against only 79.8 in 1909 and 79.6 in 1908 for Southern California. The per cent for the metropolitan area was 82.8 in 1909 and 82.9 in 1908 as compared with only 82.1 each year for the rural counties north of Tehachapi. The per cent of single brides for San Francisco was 84.9 in 1909 and 85.0 in 1908, these being the maximum per cents among geographic divisions. At the same time, however, the per cents for the other bay counties were only 80.5 and 80.6, respectively, or about the lowest outside Southern California. The per cents single were 81.0 and 80.5 for Los Angeles in 1909 and 1908, but only 77.5 and 78.1, respectively, for the other counties south of Tehachapi.

The individual counties in which at least 90.0 per cent of the brides were single were Alpine, Amador, Colusa, Humboldt, Inyo, Lassen, San Benito, and Sutter in 1909, and Glenn, Lassen, Mono, and Sierra in 1908. On the other hand, the counties in which only 80.0 per cent or less of the brides were single were as follows: In 1909, Butte, Calaveras, Contra Costa, Del Norte, El Dorado, Imperial, Kern, Madera, Marin, Mariposa, Mono, Nevada, Orange, Placer, Plumas, Sacramento, San Bernardino, San Diego, San Joaquin, San Mateo, Shasta, Siskiyou, Sonoma, Tehama, Trinity, and Yuba; and in 1908, Colusa, Del Norte, El Dorado, Inyo, Madera, Marin, Monterey, Orange, Plumas, Sacramento, San Bernardino, San Diego, San Mateo, Shasta, Sutter, Tehama, Tulare, Tuolumne, and Yuba.

The proportion of widows among the brides, as of widowers among grooms, is higher for Southern California than for Northern or Central California. The per cent of widowed brides for the counties south of Tehachapi was 11.6 in 1909 and 12.5 in 1908 as compared with 9.2 and 9.9, respectively, for the counties to the north, the per cents being 10.5 and 10.4 for Northern California and 9.0 and 9.7 for Central California. The per cents were 11.2 and 12.1 for Los Angeles in 1909 and 1908 against no less than 12.3 and 13.0 for the other counties of Southern California. The per cents for the metropolitan area were 8.9 and 9.5 as compared with 9.5 and 10.2 for the rural counties north of

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1908) and for Marin (11.9 a
alone (10.5), these being co
Francisco, respectively.

Status of Brides.—The fo
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of the brides—whether single,
day:

TABLE 7.—*Brides classified by Ma*
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GEOGRAPHIC DIVISION.	Total.	Sin
1909.		
THE STATE	22,917	18,
Northern California	2,081	[illegible]
Coast counties	989	[illegible]
Interior counties	1,092	[illegible]
Central California	13,174	[illegible]
San Francisco	4,214	[illegible]
Other bay counties	3,790	[illegible]
Coast counties	1,626	[illegible]
Interior counties	3,544	[illegible]
Southern California	7,662	6,112
Los Angeles	4,948	4,009
Other counties	2,714	2,103
Northern and Central California	15,255	12,577
Coast counties	10,619	8,785
Interior counties	4,636	3,792
Metropolitan area	8,004	6,627
Rural counties	7,251	5,950
1908.		
THE STATE	21,739	17,744
Northern California	2,057	1,701
Coast counties	1,052	876
Interior counties	1,005	[illegible]
Central California	12,862	10,6
San Francisco	4,035	3,
Other bay counties	3,721	3,
Coast counties	1,037	1
Interior counties	[illegible]	[illegible]
Southern California	[illegible]	[illegible]
Los Angeles	[illegible]	[illegible]
Other counties	[illegible]	[illegible]
Northern and Central California	[illegible]	[illegible]
Coast counties	[illegible]	[illegible]
Interior counties	[illegible]	[illegible]
Metropolitan area	7,756	[illegible]
[illegible]	7,163	[illegible]

[illegible]

08) and for San Mateo (12.1 and 11.0), adjoining San ll as for Orange (14.1 and 12.3), adjoining Los Angeles. e proportion widowed and divorced, both among grooms otably high for counties like Marin and San Mateo in range in the south, adjacent to the great cities of San Los Angeles. Analysis of marriage rates showed that ey on the part of many couples belonging to these cities burbs to be married. This preference for a suburban n the city proper as a place of marriage is most marked idowed and divorced persons marrying again, especially e divorced. The secretive divorcee even more than the enjoys the seclusion of a suburban Gretna Green.

NATIVITY OF CALIFORNIA BRIDES.

ity.—The table below gives for California in 1909 and on of brides by race, nativity, and marital condition, r cent distribution by marital condition. The white n nativity numbered only 92, or 0.4 per cent, in 1909 er cent, in 1908. These few have accordingly been ut with brides born elsewhere in the United States

ssified by Race, Nativity, and Marital Condition, with Per Cent n by Marital Condition, for California: 1909 and 1908.

	Brides.				Per Cent.		
	Total.	Single.	Widowed.	Divorced.	Single.	Widowed.	Divorced.
	22,917	18,689	2,298	1,935	81.6	10.0	8.4
	22,449	18,333	2,218	1,898	81.7	9.9	8.4
	9,133	7,944	552	637	87.0	6.0	7.0
	9,043	6,922	1,117	1,004	76.5	12.4	11.1
	4,273	3,467	549	257	81.1	12.9	6.0
	468	356	75	37	76.1	16.0	7.9
	21,739	17,744	2,317	1,678	81.6	10.7	7.7
	21,322	17,443	2,238	1,641	81.8	10.5	7.7
	8,637	7,598	492	547	88.0	5.7	6.3
	8,352	6,363	1,123	866	76.2	13.4	10.4
	4,333	3,482	623	228	80.3	14.4	5.3
	417	301	79	37	72.2	18.9	8.9

nown nativity, numbering in the entire State only 92, or 0.4 13, or 0.5 per cent, in 1908.

the non-Caucasian brides, one will observe that ents single were 76.1 in 1909 and 72.2 in 1908; the 8.9; and the divorced, 7.9 and 8.9. These per cen the per cents for white brides, the proportion the non-Caucasians being relatively small and rather large. However, the numbers from wh lculated are themselves too small for the per cen nt, especially as the non-Caucasians in Californ fferent races, such as the Chinese and Japanese

Tehachapi. The per cents for San Francisco were only 8.3 and 8.8 in 1909 and 1908 against 9.6 and 10.3, respectively, for the other bay counties. As with widowers, so with widows, somewhat more remarry in the country districts than in urban centers, and, in the latter, more remarry in the suburbs than in the metropolis proper.

The counties in which widows formed at least one tenth (10.0 per cent) of all brides in 1909 were: Butte, Calaveras, Contra Costa, Del Norte, Kern, Lake, Marin, Mariposa, Mendocino, Merced, Mono, Napa, Nevada, Plumas, Sacramento, San Joaquin, San Mateo, Santa Cruz. Shasta, Sierra, Siskiyou, Stanislaus, Tehama, Trinity, Tuolumne, Yolo. and Yuba, in Northern and Central California; and Imperial, Los Angeles, Orange, San Bernardino, San Diego, and Ventura, in Southern California. In 1908 the counties in which 10.0 per cent or more of the brides were widows were: North of Tehachapi—Butte, Colusa, Del Norte, El Dorado, Humboldt, Inyo, Kern Madera, Marin, Mariposa, Monterey, Napa, Nevada, Sacramento, San Benito, San Joaquin, San Mateo, Santa Cruz, Shasta, Solano, Sutter, Tehama, Trinity, Tulare. Tuolumne, and Yuba; and south of Tehachapi—Imperial, Los Angeles. Orange, Riverside, San Bernardino, and San Diego.

The proportion of divorced brides, as of the grooms, is somewhat greater for Southern California than for Northern or Central California. The per cents divorced among brides in 1909 and 1908, respectively. were 8.6 and 7.9 for the counties south of Tehachapi against 8.3 and 7.6 for those to the north, being 8.8 and 6.9 for Northern California and 8.3 and 7.8 for Central California. The per cents were 7.8 and 7.4 for Los Angeles in 1909 and 1908 as compared with no less than 10.2 and 8.9 for the other counties of Southern California. North of Tehachapi, however, the per cents divorced among brides are practically the same for the metropolitan area as for the rural counties, being 8.3 and 8.4, respectively, in 1909 and, similarly, 7.6 and 7.7 in 1908. Within the metropolitan area, on the contrary, the per cent of divorced brides (as of grooms) is much less for San Francisco than for the other bay counties, the per cents divorced among brides being only 6.8 and 6.2 for the metropolis proper against as much as 9.9 and 9.1 for the suburban territory. Generally speaking, divorced women, unlike divorced men. remarry somewhat more in rural districts than in an urban center, while both divorcees and divorced men remarry less in the main city than in the adjacent suburbs.

The individual counties in which at least 7.5 per cent of all brides in 1909 were divorced were: Alameda, Butte, Contra Costa, Del Norte, El Dorado, Kern, Madera, Marin, Mariposa, Mendocino. Modoc, Monterey. Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, San Luis Obispo, San Mateo, Santa Clara, Santa Cruz, Shasta, Siskiyou, Sonoma. Trinity, and Yuba, in Northern and Central California; and Imperial. Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Santa Barbara, in Southern California. The counties with 7.5 per cent or more divorced brides in 1908 were: North of Tehachapi—Alameda, Amador, Butte, Calaveras, Colusa, Contra Costa, Del Norte, El Dorado. Inyo, Kings, Madera, Marin, Monterey, Plumas, Sacramento, San Mateo, Santa Clara, Shasta, Siskiyou, Tulare, and Yuba; and south of Tehachapi—Orange, San Bernardino, and San Diego. The per cent of divorced brides was especially high each year for Marin (13.2 in 1909 and 13.4 in 1908) and for San Mateo (12.1 and 11.0), adjoining San Francisco, as well as for Orange (14.1 and 12.3), adjoining Los Angeles.

In general, the proportion widowed and divorced, both among grooms and brides, is notably high for counties like Marin and San Mateo in the north and Orange in the south, adjacent to the great cities of San Francisco and Los Angeles. Analysis of marriage rates showed that there is a tendency on the part of many couples belonging to these cities to go to the suburbs to be married. This preference for a suburban town rather than the city proper as a place of marriage is most marked on the part of widowed and divorced persons marrying again, especially on the part of the divorced. The secretive divorcee even more than the romantic maiden enjoys the seclusion of a suburban Gretna Green.

NATIVITY OF CALIFORNIA BRIDES.

Race and Nativity.—The table below gives for California in 1909 and 1908 a classification of brides by race, nativity, and marital condition, as well as the per cent distribution by marital condition. The white brides of unknown nativity numbered only 92, or 0.4 per cent, in 1909 and 113, or 0.5 per cent, in 1908. These few have accordingly been included throughout with brides born elsewhere in the United States than California:

TABLE 8.—*Brides classified by Race, Nativity, and Marital Condition, with Per Cent Distribution by Marital Condition, for California: 1909 and 1908.*

RACE OR NATIVITY.	Brides.				Per Cent.		
	Total.	Single.	Widowed.	Divorced.	Single.	Widowed.	Divorced.
1909.							
THE STATE	22,917	18,689	2,293	1,935	81.6	10.0	8.4
White	22,449	18,333	2,218	1,898	81.7	9.9	8.4
Born in California	9,183	7,944	552	687	87.0	6.0	7.0
Born in other states*	9,043	6,922	1,117	1,004	76.5	12.4	11.1
Foreign born	4,273	3,467	549	257	81.1	12.9	6.0
Non-Caucasian	468	356	75	37	76.1	16.0	7.9
1908.							
THE STATE	21,739	17,744	2,317	1,678	81.6	10.7	7.7
White	21,822	17,443	2,238	1,641	81.8	10.5	7.7
Born in California	8,637	7,598	492	547	88.0	5.7	6.3
Born in other states*	8,352	6,363	1,123	866	76.2	13.4	10.4
Foreign born	4,333	3,482	623	228	80.3	14.4	5.3
Non-Caucasian	417	301	79	37	72.2	18.9	8.9

*Includes those of unknown nativity, numbering in the entire State only 92, or 0.4 per cent, in 1909 and 113, or 0.5 per cent, in 1908.

Considering first the non-Caucasian brides, one will observe that among them the per cents single were 76.1 in 1909 and 72.2 in 1908; the widowed, 16.0 and 18.9; and the divorced, 7.9 and 8.9. These per cents differ greatly from the per cents for white brides, the proportion of single brides among the non-Caucasians being relatively small and the proportion widowed rather large. However, the numbers from which the per cents were calculated are themselves too small for the per cents to be very significant, especially as the non-Caucasians in California comprise widely different races, such as the Chinese and Japanese on one hand and negroes and Indians on the other. The 468 non-Caucasian brides in 1909 form only 2.0 per cent of the State total, and the 417 in 1908 form only 1.9 per cent. Of all the single brides, the non-Caucasians were only 1.9 and 1.7 per cent in 1909 and 1908; of the widowed, only 3.3 and 3.4 per cent; and of the divorced, only 1.9 and 2.2 per cent. On account of the small proportion of non-Caucasians among California brides, attention will be directed in the following discussion only to the facts for whites.

Of the 22,449 white brides in 1909, 18,333, or 81.7 per cent, were single; 2,218, or 9.9 per cent, widowed; and 1,898, or 8.4 per cent, divorced. Among the 21,322 in 1908, the single were 17,443, or 81.8 per cent; the widowed 2,238, or 10.5 per cent; and the divorced 1,641, or 7.7 per cent. For 1909 as compared with 1908 there was a drop of 0.1 in the per cent single and of 0.6 in the per cent widowed, offset by a rise of 0.7 in the per cent divorced.

Among the white brides in 1909, 9,133 were born in California, and of these 7,944, or 87.0 per cent, were single; 552, or 6.0 per cent widowed; and 637, or 7.0 per cent, divorced. Among the 8,637 brides in 1908 who were natives of this State, the single were 7,598, or 88.0 per cent; the widowed 492, or 5.7 per cent; and the divorced 547, or 6.3 per cent. The per cent single fell by 1.0, while the per cent widowed and divorced rose by 0.3 and 0.7, respectively.

Including the few of unknown nativity, altogether 9,043 of the brides in 1909 were born elsewhere in the United States than California, and among them the single were 6,922, or 76.5 per cent; the widowed 1,117, or 12.4 per cent; and the divorced 1,004, or 11.1 per cent. Of the 8,352 brides in 1908 who were born in other states, 6,363, or 76.2 per cent, were single: 1,123, or 13.4 per cent, widowed; and 866, or 10.4 per cent, divorced. There was an increase of 0.3 in the per cent single and of 0.7 in the per cent divorced, with a decrease of 1.0 in the per cent widowed.

Of the white brides in 1909, the foreign born numbered 4,273, of whom the single were 3,467, or 81.1 per cent; the widowed 549, or 12.9 per cent; and the divorced 257, or only 6.0 per cent. Of the 4,333 foreign born brides in 1908, 3,482, or 80.3 per cent, were single; 623, or 14.4 per cent, widowed; and only 228, or 5.3 per cent, divorced. There was an increase of 0.8 in the per cent single and of 0.7 in the per cent divorced, counterbalanced by a decrease of 1.5 in the per cent widowed.

Status of White Brides.—The table on the following page shows, by numbers and per cents, the civil status or marital condition of the white brides at the time of marriage—whether single, widowed, or divorced—for the several geographic divisions of the State in both 1909 and 1908.

TABLE 9.—*White Brides classified by Marital Condition, with Per Cents, for Geographic Divisions: 1909 and 1908.*

GEOGRAPHIC DIVISION.	White Brides.				Per Cent		
	Total.	Single	Widowed.	Divorced	Single.	Widowed.	Divorced.
1909.							
THE STATE	22,449	18,333	2,238	1,641	81.8	10.5	7.7
Northern California	2,054	1,663	209	182	81.0	10.2	8.8
Coast counties	978	805	91	82	82.3	9.3	8.4
Interior counties	1,076	858	118	100	79.7	11.0	9.3
Central California	12,921	10,696	1,154	1,071	82.8	8.9	8.3
San Francisco	4,085	3,452	347	286	84.5	8.5	7.0
Other bay counties	3,727	3,014	351	362	80.9	9.4	9.7
Coast counties	1,613	1,335	131	147	82.8	8.1	9.1
Interior counties	3,496	2,895	325	276	82.8	9.3	7.9
Southern California	7,474	5,974	855	645	79.9	11.5	8.6
Los Angeles	4,804	3,908	525	371	81.4	10.9	7.7
Other counties	2,670	2,066	330	274	77.4	12.3	10.3
Northern and Central California	14,975	12,359	1,363	1,253	82.5	9.1	8.4
Coast counties	10,403	8,606	920	877	82.7	8.9	8.4
Interior counties	4,572	3,753	443	376	82.1	9.7	8.2
Metropolitan area	7,812	6,466	698	648	82.8	8.9	8.3
Rural counties	7,163	5,893	665	605	82.3	9.3	8.4
1908.							
THE STATE	21,322	17.443	2,238	1,641	81.8	10.5	7.7
Northern California	2.031	1,682	210	139	82.8	10.3	6.9
Coast counties	1,040	864	109	67	83.1	10.5	6.4
Interior counties	991	818	101	72	82.5	10.2	7.3
Central California	12,653	10,447	1,222	984	82.5	9.7	7.8
San Francisco	3,970	3,370	350	250	84.9	8.8	6.3
Other bay counties	3,650	2,951	370	329	80.9	10.1	9.0
Coast counties	1,621	1,337	155	129	82.5	9.6	7.9
Interior counties	3,412	2,789	347	276	81.7	10.2	8.1
Southern California	6,638	5,314	806	518	80.1	12.1	7.8
Los Angeles	4,309	3,490	508	311	81.0	11.8	7.2
Other counties	2,329	1,824	298	207	78.3	12.8	8.9
Northern and Central California	14,684	12,129	1,432	1,123	82.6	9.8	7.6
Coast counties	10,281	8,522	984	775	82.9	9.6	7.5
Interior counties	4,403	3,607	448	348	81.9	10.2	7.9
Metropolitan area	7,620	6,321	720	579	83.0	9.4	7.6
Rural counties	7,064	5,808	712	544	82.2	10.1	7.7

This table shows that the per cent single among white brides was higher each year for the counties north of Tehachapi than for those to the south. The per cents single in 1909 and 1908, respectively, were 82.5 and 82.6 for the counties north of Tehachapi against 79.9 and 80.1 for those to the south, being 81.0 and 82.8 for Northern California alone and 82.8 and 82.5 for Central California alone. The per cents for the metropolitan area were 82.8 and 83.0 as compared with 82.3 and 82.2 for the rural counties north of Tehachapi. The per cent of single white brides was highest among the geographic divisions each year for San Francisco, 84.5 in 1909 and 84.9 in 1908. For the other bay counties, however, the per cent was only 80.9 each year, or about the lowest outside Southern California. The per cents single for Los Angeles were 81.4 and 81.0 in 1909 and 1908 as compared with only 77.4 and 78.3 for the other counties south of Tehachapi.

The proportion of widows among white brides is higher for Southern California than for Northern or Central California. The per cents widowed for the counties south of Tehachapi were 11.5 and 12.1 in 1909 and 1908 against 9.1 and 9.8 for all to the north, being 10.2 and 10.3 for Northern California and 8.9 and 9.7 for Central California. The per cents for Los Angeles were 10.9 and 11.8, and for the rest of Southern California no less than 12.3 and 12.8 in 1909 and 1908, respectively. The per cents were 8.9 and 9.4 for the metropolitan area as compared with 9.3 and 10.1 for the rural counties of Northern and Central California. For San Francisco the per cents widowed were only 8.5 and 8.8, or about the minimum each year; but for the other bay counties the per cents were considerably higher, 9.4 and 10.1. Of white widows it may therefore be said, as of widowers and widows of all races taken together, that more remarry in rural districts than in urban centers, but that in the metropolitan area more remarry in the suburbs than in the main city.

The proportion of divorcees, as of widows, among white brides is somewhat greater for the counties south of Tehachapi than for those to the north. The per cents divorced in 1909 and 1908, respectively, were 8.6 and 7.8 for Southern California against 8.4 and 7.6 for Northern and Central California together, being 8.8 and 6.9 for Northern California and 8.3 and 7.8 for Central California alone. The per cents were 7.7 and 7.2 for Los Angeles in 1909 and 1908 against no less than 10.3 and 8.9 for the other counties of Southern California. North of Tehachapi, however, the per cents divorced are almost the same for the metropolitan area as for the rural counties, being 8.3 and 8.4, respectively, in 1909 and, similarly, 7.6 and 7.7 in 1908. Generally speaking, divorcees, like widows, remarry more in country districts than in urban centers, while both divorcees and widows, like divorced men and widowers, remarry more in the suburbs of a great city than within the metropolis itself.

Status of White Brides (by Nativity).—The following table shows, for the several geographic divisions in 1909 and 1908, the civil status or marital condition—as single, widowed, or divorced—of the white brides classified by nativity—as born in California, born in other states, or foreign born. For convenience in presentation, the absolute numbers are omitted and only the per cent distributions are given here. The absolute numbers may be found, however, in Tables 15 and 16, pages 184 to 187:

TABLE 10.—*Per Cent Distribution, by Marital Condition, of White Brides Classified by Nativity, for Geographic Divisions: 1909 and 1908.*

GEOGRAPHIC DIVISION.	White Brides.								
	Per Cent Single among those—			Per Cent Widowed among those—			Per Cent Divorced among those—		
	Born in California.	Born in Other States.	Foreign Born.	Born in California.	Born in Other States.	Foreign Born.	Born in California.	Born in Other States.	Foreign Born.
1909.									
THE STATE	87.0	76.5	81.1	6.0	12.4	12.9	7.0	11.1	6.0
Northern California	87.2	69.2	78.4	6.1	15.7	17.3	6.7	15.1	4.3
Coast counties	88.0	68.8	83.6	5.1	15.6	14.0	6.9	15.6	2.4
Interior counties	86.6	69.5	65.7	6.9	15.8	25.4	6.5	14.7	8.9
Central California	86.9	76.4	82.2	5.9	11.8	11.7	7.2	11.8	6.1
San Francisco	88.5	73.8	85.7	5.5	12.8	9.8	6.0	12.4	4.5
Other bay counties	85.5	74.8	78.6	6.7	11.4	13.1	7.8	13.8	8.3
Coast counties	87.0	78.0	77.7	4.9	11.8	11.8	8.1	10.2	10.5
Interior counties	86.5	78.4	81.7	6.1	11.5	13.7	7.4	10.1	4.6
Southern California	87.3	77.6	78.9	6.4	12.4	15.1	6.3	10.0	6.0
Los Angeles	87.5	79.6	80.4	6.7	11.6	13.8	5.8	8.8	5.8
Other counties	86.9	73.8	75.6	6.0	13.8	17.9	7.1	12.4	6.5
Northern and Central California	86.9	75.4	81.9	6.0	12.3	12.1	7.1	12.3	6.0
Coast counties	87.1	74.8	82.4	5.8	12.3	11.3	7.1	12.9	6.3
Interior counties	86.6	76.5	80.1	6.3	12.4	14.8	7.1	11.1	5.1
Metropolitan area	87.0	74.8	83.0	6.1	12.0	11.1	6.9	13.2	5.9
Rural counties	86.9	75.9	80.0	5.8	12.7	13.9	7.3	11.4	6.1
1908.									
THE STATE	88.0	76.2	80.3	5.7	13.4	14.4	6.3	10.4	5.3
Northern California	88.7	74.0	76.0	5.8	15.5	19.1	5.5	10.5	4.9
Coast counties	88.0	76.9	76.5	6.1	14.5	18.4	5.9	8.6	5.1
Interior counties	89.4	71.7	74.7	5.6	16.3	21.1	5.0	12.0	4.2
Central California	87.3	75.4	81.6	5.9	13.0	13.4	6.8	11.6	5.0
San Francisco	88.5	77.9	84.5	5.9	11.7	11.0	5.6	10.4	4.5
Other bay counties	86.6	74.0	77.9	5.6	13.2	15.8	7.8	12.8	6.3
Coast counties	87.5	74.8	79.0	6.2	12.2	15.8	6.3	13.0	5.2
Interior counties	86.4	75.1	81.9	6.2	14.0	13.8	7.4	10.9	4.3
Southern California	90.7	77.2	78.0	4.5	13.6	16.0	4.8	9.2	6.0
Los Angeles	90.4	78.6	80.2	4.4	13.2	14.2	5.2	8.2	5.6
Other counties	91.0	74.4	73.2	4.7	14.3	20.0	4.3	11.3	6.8
Northern and Central California	87.5	75.2	81.2	5.9	13.3	13.8	6.6	11.5	5.0
Coast counties	87.6	75.7	81.2	5.9	12.6	13.6	6.5	11.7	5.2
Interior counties	87.2	74.8	81.1	6.0	14.5	14.6	6.8	11.2	4.3
Metropolitan area	87.6	75.7	81.9	5.7	12.5	12.9	6.7	11.8	5.2
Rural counties	87.4	74.7	79.8	6.1	14.0	15.6	6.5	11.3	4.6

Table 10 shows that the per cents single were no less than 87.0 in 1909 and 88.0 in 1908 among white brides born in California as compared with 81.1 and 80.3 among the foreign born brides and 76.5 and 76.2 among those born in other states. In every part of the State each year the per cent single is highest of all for brides who were born in California. As a rule, too, the per cent single is next highest for foreign born brides and lowest of all for those born elsewhere in the United States than here. Exceptions to this rule appear only for the interior counties of Northern California and the coast counties of Central California in 1909 and for the coast counties of Northern California and the counties of Southern California other than Los Angeles in 1908.

In both 1909 and 1908 the per cent single was much higher for each class of brides in Los Angeles than for those in the other counties of Southern California. However, for the metropolitan area, as compared with the rural counties north of Tehachapi, the per cent single was notably higher each year for the former than for the latter only, in the case of foreign born brides. Yet for San Francisco, in contrast with its suburbs, the per cent single was higher each year for the main city than for the suburban counties, not only among brides born abroad, but also among those born in California.

The per cents widowed were no less than 12.9 and 14.4 in 1909 and 1908 among foreign born brides and 12.4 and 13.4 among those born in other states against only 6.0 and 5.7 among white brides born in California. In San Francisco each year, as well as in the coast counties of Northern California in 1909 and in the interior counties of Central California in 1908, the per cent widowed was highest among brides born elsewhere in the United States than California. In the remaining geographic divisions, however, the per cent widowed was highest of all each year among foreign born brides. Without exception, the per cent widowed is decidedly lowest among white brides born in the Golden State.

Generally speaking, the per cent widowed was less among each class by nativity for Los Angeles than for the other counties south of Tehachapi; for the metropolitan area than for the rural counties north of Tehachapi; and for San Francisco than for the other bay counties. Exceptions for some one of the three classes either in 1909 or 1908 are hardly marked enough to affect the general rule that in each element of the population more widows remarry in rural districts than in urban centers, and in the latter more remarry in the suburbs than in the main city.

The per cents divorced were as great as 11.1 in 1909 and 10.4 in 1908 among white brides born in other states, but only 7.0 and 6.3 among those born in California and 6.0 and 5.3 among foreign born brides. Everywhere in California each year, generally speaking, the per cent divorced was greatest among brides born in other states, next among those born in this State, and lowest of all among the foreign born. Slight exceptions to the rule, due to unusually high per cents divorced among foreign born brides, appear in 1909 for the coast counties of Northern and of Central California, as well as for the group of other bay counties adjoining San Francisco, and in 1908 for Los Angeles and the other counties of Southern California.

The per cent divorced was less each year among all classes of brides in Los Angeles than in the rest of Southern California (except as to California born brides in 1908), and was decidedly less without exception in San Francisco than in the adjoining bay counties. For the metropolitan area in comparison with the rural counties north of Tehachapi, however, some baffling contrasts appear, conditions in 1909 being just the reverse of those in 1908 for the per cent divorced among brides born in California and among those born abroad, while for brides born in other states (among whom divorcees are most numerous) the per cents divorced were greater each year for the metropolitan area than for the rural counties. The rule that widows remarry more in rural districts than in urban centers has been found to hold good for each class of white brides, whether born in California, in other states, or in foreign countries. While white divorcees as a whole likewise remarry somewhat more in rural counties than in the metropolitan area, yet the class including most divorcees (*i. e.*, other Americans) is found to remarry more in the urban centers than in rural districts. Divorcees and widows are alike, however, in that for each element of the population—Californian, other American, or foreign—many more remarry in the suburban territory than within the metropolis proper.

Nativity of White Brides.—The following table shows, by numbers and per cents, the nativity of white brides—as born in California, born in other states, or foreign born—for the several geographic divisions in 1909 and 1908:

TABLE 11.—*White Brides classified by Nativity, with Per Cents, for Geographic Divisions. 1909 and 1908.*

GEOGRAPHIC DIVISION.	White Brides.				Per Cent.		
	Total.	Born in California.	Born in Other States.*	Foreign Born.	Born in California.	Born in Other States.	Foreign Born.
1909.							
THE STATE	22,449	9,133	9,043	4,273	40.7	40.3	19.0
Northern California	2,054	1,226	597	231	59.7	29.1	11.2
Coast counties	978	564	250	164	57.7	25.5	16.8
Interior counties	1,076	662	347	67	61.5	32.3	6.2
Central California	12,921	6,252	3,734	2,935	48.4	28.9	22.7
San Francisco	4,085	1,884	924	1,277	46.1	22.6	31.3
Other bay counties	3,727	1,851	1,114	762	49.7	29.9	20.4
Coast counties	1,613	867	450	296	53.7	27.9	18.4
Interior counties	3,496	1,650	1,246	600	47.2	35.6	17.2
Southern California	7,474	1,655	4,712	1,107	22.1	63.1	14.8
Los Angeles	4,804	970	3,079	755	20.2	64.1	15.7
Other counties	2,670	685	1,633	352	25.6	61.2	13.2
Northern and Central California	14,975	7,478	4,331	3,166	49.9	28.9	21.2
Coast counties	10,403	5,166	2,738	2,499	49.7	26.3	24.0
Interior counties	4,572	2,312	1,593	667	50.6	34.8	14.6
Metropolitan area	7,812	3,735	2,038	2,039	47.8	26.1	26.1
Rural counties	7,163	3,743	2,293	1,127	52.3	32.0	15.7
1908.							
THE STATE	21,322	8,637	8,352	4,333	40.5	39.2	20.3
Northern California	2,031	1,184	580	267	58.3	28.6	13.1
Coast counties	1,040	589	255	196	56.6	24.5	18.9
Interior counties	991	595	325	71	60.0	32.8	7.2
Central California	12,653	6,106	3,586	2,961	48.3	28.3	23.4
San Francisco	3,970	1,815	873	1,282	45.7	22.0	32.3
Other bay counties	3,650	1,743	1,098	809	47.7	30.1	22.2
Coast counties	1,621	886	445	290	54.7	27.4	17.9
Interior counties	3,412	1,662	1,170	580	48.7	34.3	17.0
Southern California	6,638	1,347	4,186	1,105	20.3	63.1	16.6
Los Angeles	4,309	771	2,784	754	17.9	64.6	17.5
Other counties	2,329	576	1,402	351	24.7	60.2	15.1
Northern and Central California	14,684	7,290	4,166	3,228	49.6	28.4	22.0
Coast counties	10,281	5,033	2,671	2,577	48.9	26.0	25.1
Interior counties	4,403	2,257	1,495	651	51.3	33.9	14.8
Metropolitan area	7,620	3,558	1,971	2,091	46.7	25.9	27.4
Rural counties	7,064	3,732	2,195	1,137	52.8	31.1	16.1

*Includes those of unknown nativity, numbering in the entire State only 92, or 0.4 per cent, in 1909 and 113, or 0.5 per cent, in 1908.

It appears from this table that of 22,449 white brides in 1909, 9,133, or 40.7 per cent, were born in California; 9,043, or 40.3 per cent, were born in other states, including a few of unknown nativity; and 4,273, or 19.0 per cent, were foreign born. Of the 21,322 white brides in 1908, those born in California were 8,637, or 40.5 per cent; those born in other states, including the few unknown, were 8,352, or 39.2 per cent; and the foreign born were 4,333, or 20.3 per cent. There were increases of 0.2 and 1.1 in the per cents born in California and born in other states, respectively, while there was a decrease of 1.3 in the per cent foreign born.

The proportion of native daughters among the brides is very high for Northern as well as Central California, but very low indeed for Southern California. The per cents born in California in 1909 and 1908, respectively, were 59.7 and 58.3 for Northern California and 48.4 and 48.3 for Central California, or 49.9 and 49.6 for both together, against as little as 22.1 and 20.3 for Southern California. The per cents were only 20.2 and 17.9 for Los Angeles and 25.6 and 24.7 for the other counties south of Tehachapi. North of Tehachapi, likewise, the per cents were less for the metropolitan area (47.8 and 46.7) than for the rural counties (52.3 and 52.8), and also less for San Francisco (46.1 and 45.7) than for the other bay counties (49.7 and 47.7).

The proportion of white brides born elsewhere in the United States than California is very high indeed for the counties south of Tehachapi, but is quite low for those to the north. The per cent of brides born in other states was 63.1 each year for Southern California, being no less than 64.1 in 1909 and 64.6 in 1908 for Los Angeles and 61.2 and 60.2, respectively, for the other counties. On the other hand, the corresponding per cents for the counties north of Tehachapi were only 28.9 and 28.4, being 29.1 and 28.6 for Northern California and 28.9 and 28.3 for Central California. The per cents born in other states were 26.1 and 25.9 for the metropolitan area as compared with 32.0 and 31.1 for the rural counties. For San Francisco the per cents were only 22.6 and 22.0 against 29.9 and 30.1 for the other bay counties.

The proportion of foreign born brides is notably high only for Central California, especially in San Francisco and its suburbs. The per cents foreign born among white brides in 1909 and 1908, respectively, were 22.7 and 23.4 for Central California as compared with only 14.8 and 16.6 for Southern California and 11.2 and 13.1 for Northern California. The per cents for the counties north of Tehachapi were 21.2 and 22.0, being no less than 26.1 and 27.4 for the metropolitan area, but merely 15.7 and 16.1 for the rural counties. The per cents foreign born were as great as 31.3 and 32.3 for San Francisco alone as compared with 20.4 and 22.2 for the other counties on the bay. Similarly, the per cents were greater for Los Angeles (15.7 and 17.5) than for the other counties of Southern California (13.2 and 15.1).

Nativity of White Brides (by States).—The following table shows for the several geographic divisions in 1909 and 1908, the nativity—as born in California, born in other states, or foreign born—of white brides classified by civil status or marital condition—as single, widowed, or divorced. For convenience in presentation, only the per cent distributions are given here, though the absolute numbers appear in Tables 17 and 18, pages 188 to 190:

TABLE 12.—*Per Cent Distribution, by Nativity, of White Brides classified by Marital Condition, for Geographic Divisions: 1909 and 1908.*

GEOGRAPHIC DIVISION.	White Brides.								
	Per Cent Born in California among the—			Per Cent Born in Other States among the—			Per Cent Foreign Born among the—		
	Single.	Widowed.	Divorced.	Single.	Widowed.	Divorced	Single	Widowed.	Divorced.
1909.									
THE STATE	43.3	24.9	33.6	37.8	50.4	52.9	18.9	24.7	13.5
Northern California	64.3	35.9	45.1	24.8	45.0	49.4	10.9	19.1	5.5
Coast counties	61.6	31.9	47.6	21.4	41.8	47.5	17.0	25.3	4.9
Interior counties	66.8	39.0	43.0	28.1	46.6	51.0	5.1	14.4	6.0
Central California	50.8	32.2	42.0	26.6	38.2	41.2	22.6	29.6	16.8
San Francisco	48.3	30.0	39.5	20.0	34.0	40.2	31.7	36.0	20.3
Other bay counties	52.5	35.3	40.1	27.6	36.2	42.5	19.9	28.5	17.4
Coast counties	56.5	32.8	47.6	26.3	40.5	31.3	17.2	26.7	21.1
Interior counties	49.4	30.8	44.2	33.7	44.0	45.7	16.9	25.2	10.1
Southern California	24.2	12.4	16.3	61.2	68.1	73.3	14.6	19.1	10.4
Los Angeles	21.7	12.4	15.1	62.8	67.8	73.0	15.5	19.8	11.9
Other counties	28.8	12.4	17.9	58.3	68.5	73.7	12.9	19.1	8.4
Northern and Central California	52.6	32.7	42.4	26.4	39.3	42.4	21.0	28.0	15.2
Coast counties	52.3	32.6	41.8	23.8	36.6	40.4	23.9	30.8	17.8
Interior counties	53.3	33.0	43.9	32.5	44.7	47.1	14.2	22.3	9.0
Metropolitan area	50.2	32.7	39.8	23.6	35.1	41.5	26.2	32.2	18.7
Rural counties	55.2	32.8	45.3	29.5	43.6	43.3	15.3	23.6	11.4
1908.									
THE STATE	43.5	22.0	33.3	36.5	50.2	52.8	20.0	27.8	13.9
Northern California	62.4	32.8	46.8	25.5	42.9	43.9	12.1	24.3	9.3
Coast counties	59.9	33.0	52.3	22.7	34.0	32.8	17.4	33.0	14.9
Interior counties	65.0	32.7	41.7	28.5	52.5	54.2	6.5	14.8	4.1
Central California	51.0	29.6	42.4	25.9	38.1	42.5	23.1	32.3	15.1
San Francisco	47.7	30.6	40.4	20.2	29.1	36.4	32.1	40.3	23.2
Other bay counties	51.1	26.2	41.6	27.5	39.2	42.9	21.4	34.6	15.5
Coast counties	58.0	35.5	43.4	24.9	34.8	45.0	17.1	29.7	11.6
Interior counties	51.5	29.7	44.6	31.5	47.3	46.4	17.0	23.0	9.0
Southern California	23.0	7.6	12.6	60.8	70.5	74.7	16.2	21.9	12.7
Los Angeles	20.0	6.7	12.9	62.7	72.2	73.6	17.3	21.1	13.5
Other counties	28.7	9.1	12.1	57.2	67.4	76.3	14.1	23.5	11.6
Northern and Central California	52.6	30.1	42.9	25.8	38.8	42.7	21.6	31.1	14.4
Coast counties	51.7	30.0	42.4	23.7	34.3	40.3	24.6	35.7	17.3
Interior counties	54.6	30.4	44.0	30.8	48.4	48.0	14.6	21.2	8.0
Metropolitan area	49.3	28.3	41.1	23.6	34.3	40.1	27.1	37.4	18.8
Rural counties	56.2	31.9	44.9	28.2	43.2	45.4	15.6	24.9	9.7

It appears from Table 12 that in 1909 and 1908, respectively, the per cents born in California were 43.3 and 43.5 among the single brides; 33.6 and 33.3 among the divorced; and 24.9 and 22.0 among the widowed. In all parts of the State both years the native daughters formed the bulk of the single brides and a large proportion of the divorced, but a small proportion of the widowed brides.

The per cents born in the Golden State among the single, widowed, and divorced brides were very much less for Southern California each year than for Northern or Central California. Generally speaking, the per cents born in California were also less for Los Angeles in all cases than for the other counties south of Tehachapi, the only marked exception being for divorced brides in 1908. Without exception, the per cents born in this State were likewise less for the metropolitan area than for the rural counties north of Tehachapi. Except that in 1908 alone the per cent born in California was greater among the widowed brides in San Francisco than in the other bay counties, the rule is also that the proportion of native daughters among each class of brides is less for the metropolis proper than for the surrounding suburbs.

In 1909 and 1908, respectively, the per cents born in other states than California were 52.9 and 52.8 among the divorced and 50.4 and 50.2 among the widowed as compared with 37.8 and 36.5 among the single white brides. In the coast counties of Central California in 1909 and in the coast counties of Northern California and the interior counties of Central California in 1908 alone the per cent born in other states was greater among widowed than divorced brides. But for every other geographic division each year a larger proportion of the divorcees than of the widows remarrying were born elsewhere in the United States than California. In Los Angeles the per cents born in other states were no less than 73.0 and 73.6 among the divorced brides in 1909 and 1908, and 67.8 and 72.2 among the widowed; for the other counties south of Tehachapi the per cents for divorcees were as great as 73.7 and 76.3, and for widows were 68.5 and 67.4.

The per cents born in other states among single, widowed, and divorced brides were much greater each year for Southern California than for Northern or Central California. North of Tehachapi the per cents born in other states were less among brides of each class in the metropolitan area than in the rural counties, and were also less in San Francisco in all cases than in the other bay counties. The per cents born elsewhere in the United States were greater for Los Angeles than for the rest of Southern California among single brides in both 1909 and 1908, but were less each year for Los Angeles than for the other counties among the divorced, while among widowed brides Los Angeles had the smaller per cent in 1909, but the greater in 1908.

The per cents foreign born in 1909 and 1908, respectively, were 24.7 and 27.8 among the widowed as compared with 18.9 and 20.0 among the single and only 13.5 and 13.9 among the divorced. In the interior counties of Northern California and the coast counties of Central California for 1909 alone, the per cents foreign born were somewhat greater among the divorced than among the single brides, being greatest, as usual, among the widowed. As a rule, though, the per cent of foreign born brides was highest in every instance each year among the widowed, next highest among the single, and lowest of all among the divorced.

The per cents foreign born were higher in all cases for San Francisco than for the other bay counties, and likewise higher for the metropolitan area than for the rural counties north of Tehachapi. In 1908 alone the per cent foreign born among widowed brides was somewhat less for Los Angeles than for the other counties south of Tehachapi; but, in general, the per cent foreign born was higher among all classes of brides in Los Angeles than in the rest of Southern California.

Of all the single brides in 1909 and 1908, the per cents born in California were 43.3 and 43.5; the per cents born in other states were 37.8 and 36.5; and the per cents foreign born were only 18.9 and 20.0. That is, California girls form the bulk of the single brides, and those born in other states form a considerable proportion, while comparatively few single brides in this State were foreign born.

Of the widowed remarrying in 1909 and 1908, the per cents born elsewhere in the United States than California were 50.4 and 50.2; the per cents foreign born were 24.7 and 27.8; and the per cents born in California were 24.9 and 22.0. As compared with the per cent distributions of all white brides taken together, the per cents for the widowed are very high for those born outside California, whether in other states or foreign countries, while the per cents are relatively very low for the widowed brides born in the Golden State.

Of all the divorcees remarrying in 1909 and 1908, the per cents born in other states were as great as 52.9 and 52.8; the per cents born in California were 33.6 and 33.3; and the per cents foreign born were only 13.5 and 13.9. In short, American women born in other states comprise the great bulk of the divorced brides in California, and while the native daughters form a considerable proportion of the divorcees remarrying, the foreign born constitute a very small proportion indeed.

Conclusion.—That the native daughters should constitute the bulk of the single brides necessarily follows from the fact that most of the marriageable young women in California were born and reared in the glorious climate of this Golden State. That the great bulk of the widowed brides were born outside California, and only a comparatively small proportion were born within the Golden State, would naturally be expected from the fact that very few women born in California are old enough to have been married and become widows, so that nearly all the widows remarrying here must necessarily have come from other states or foreign countries. The very great disparity between the proportions for the American born and the foreign born among divorced brides is evidently due to a difference in the attitude toward divorce and remarriage between the American and foreign elements of the white population.

TABLE 13.—*Marriages classified by Number in Order and*

COUNTY.	Total Marriages.	Number of Marriage.				Groom.			
		First of Both Parties.	First of Groom Only	First of Bride Only.	Second or Over of Both.	Single.	Widowed.	Divorced.	Single.
CALIFORNIA	22,917	16,863	2,409	1,826	1,819	19,272	2,072	1,573	18,689
Alameda	2,469	1,844	239	197	189	2,083	211	175	2,041
Alpine	1	1				1			1
Amador	57	47	4	5	1	51	4	2	52
Butte	193	149	26	2	16	175	10	8	151
Calaveras	30	24	3		3	27	2	1	24
Colusa	25	24	1			25			24
Contra Costa	164	116	25	14	9	141	13	10	130
Del Norte	20	8	5	1	6	13	3	4	9
El Dorado	43	31	8	2	2	39	2	2	33
Fresno	673	508	58	65	42	566	63	44	573
Glenn	34	27	2	3	2	29	5		30
Humboldt	270	230	18	13	9	248	14	8	243
Imperial	77	52	8	8	9	60	8	9	60
Inyo	37	32	1	3	1	33		4	35
Kern	258	190	34	15	19	224	18	16	205
Kings	199	163	13	12	11	176	17	6	175
Lake	33	27	4		2	31	1	1	27
Lassen	30	27	2		1	29		1	27
Los Angeles	4,948	3,587	492	422	447	4,079	527	342	4,009
Madera	57	41	7	3	6	48	5	4	44
Marin	852	560	114	87	91	674	77	101	647
Mariposa	12	9	3			12			9
Mendocino	155	118	16	9	12	134	12	9	127
Merced	88	66	13	6	3	79	3	6	72
Modoc	44	36	5	1	2	41	1	2	37
Mono	5	4	1			5			4
Monterey	172	132	19	14	7	151	8	13	146
Napa	140	98	18	15	9	116	12	12	113
Nevada	95	70	13	5	7	83	8	4	75
Orange	871	559	124	86	102	683	79	109	645
Placer	78	51	5	11	11	56	13	9	62
Plumas	25	18	5	1	1	23	1	1	19
Riverside	297	215	24	29	29	239	37	21	244
Sacramento	853	617	105	63	68	722	65	66	680
San Benito	49	40	4	5		44	2	3	45
San Bernardino	492	338	50	46	58	388	56	48	389
San Diego	624	404	73	69	78	477	97	50	473
San Francisco	4,214	3,303	406	272	233	3,709	293	212	3,575
San Joaquin	522	380	63	36	43	443	43	36	416
San Luis Obispo	206	155	20	17	14	175	17	14	172
San Mateo	305	207	38	27	33	245	28	32	234
Santa Barbara	218	164	21	16	17	185	22	11	180
Santa Clara	941	687	90	86	78	777	97	67	773
Santa Cruz	258	183	25	27	23	208	32	18	210
Shasta	170	110	22	16	22	132	23	15	126
Sierra	16	12	2	1	1	14	1	1	13
Siskiyou	156	107	25	15	9	132	17	7	122
Solano	152	116	13	12	11	129	13	10	128
Sonoma	363	262	46	27	28	308	33	22	289
Stanislaus	131	99	16	8	8	115	10	6	107
Sutter	30	26	2	1	1	28	2		27
Tehama	106	75	12	9	10	87	11	8	84
Trinity	8	3	4	1		7	1		4
Tulare	276	222	23	18	13	245	24	7	240
Tuolumne	61	46	5	6	4	51	7	3	52
Ventura	135	101	14	11	9	115	13	7	112
Yolo	89	71	6	4	8	77	6	6	75
Yuba	90	66	14	4	6	80	5	5	70

Marital Condition of Parties, with Per Cents, for Counties: 1909.

Bride.		Per Cent of Marriages.				Per Cent of Grooms.			Per Cent of Brides.		
Widowed.	Divorced.	First of Both Parties.	First of Groom Only.	First of Bride Only.	Second or Over of Both.	Single.	Widowed.	Divorced.	Single.	Widowed.	Divorced.
2,298	1,935	73.6	10.5	8.0	7.9	84.1	9.0	6.9	81.6	10.0	8.4
219	209	74.7	9.7	8.0	7.6	84.4	8.5	7.1	82.7	8.9	8.4
-----	-----	100.0	-----	-----	-----	100.0	-----	-----	100.0	-----	-----
3	2	82.5	7.0	8.8	1.7	89.5	7.0	3.5	91.2	5.3	3.5
23	19	77.2	13.5	1.0	8.3	90.7	5.2	4.1	78.2	11.9	9.9
4	2	80.0	10.0	-----	10.0	90.0	6.7	3.3	80.0	13.3	6.7
-----	1	96.0	4.0	-----	-----	100.0	-----	-----	96.0	-----	4.0
18	16	70.7	15.3	8.5	5.5	86.0	7.9	6.1	79.3	11.0	9.7
8	3	40.0	25.0	5.0	30.0	65.0	15.0	20.0	45.0	40.0	15.0
3	7	72.1	18.6	4.7	4.6	90.7	4.7	4.6	76.7	7.0	16.3
50	50	75.5	8.6	9.7	6.2	84.1	9.4	6.5	85.2	7.4	7.4
3	1	79.4	5.9	8.8	5.9	85.3	14.7	-----	88.2	8.8	3.0
16	11	85.2	6.7	4.8	3.3	91.8	5.2	3.0	90.0	5.9	4.1
11	6	67.5	10.4	10.4	11.7	77.9	10.4	11.7	77.9	14.3	7.8
-----	2	86.5	2.7	8.1	2.7	89.2	-----	10.8	94.6	-----	5.4
26	27	73.6	13.2	5.8	7.4	86.8	7.0	6.2	79.4	10.1	10.5
15	9	81.9	6.6	6.0	5.5	88.5	8.5	3.0	88.0	7.5	4.5
4	2	81.8	12.1	-----	6.1	94.0	3.0	3.0	81.8	12.1	6.1
1	2	90.0	6.7	-----	3.3	96.7	-----	3.3	90.0	3.3	6.7
558	386	72.5	10.0	8.5	9.0	82.4	10.7	6.9	81.0	11.2	7.8
5	8	71.9	12.3	5.3	10.5	84.2	8.8	7.0	77.2	8.8	14.0
93	112	65.7	13.4	10.2	10.7	79.1	9.0	11.9	75.9	10.9	13.2
2	1	75.0	25.0	-----	-----	100.0	-----	-----	75.0	16.7	8.3
16	12	76.1	10.3	5.8	7.8	86.5	7.7	5.8	81.9	10.3	7.8
10	6	75.0	14.8	6.8	3.4	89.8	3.4	6.8	81.8	11.4	6.8
3	4	81.8	11.4	2.3	4.5	93.2	2.3	4.5	84.1	6.8	9.1
1	-----	80.0	20.0	-----	-----	100.0	-----	-----	80.0	20.0	-----
7	19	76.8	11.0	8.1	4.1	87.8	4.6	7.6	84.9	4.1	11.0
14	13	70.0	12.9	10.7	6.4	82.8	8.6	8.6	80.7	10.0	9.3
11	9	73.7	13.7	5.2	7.4	87.4	8.4	4.2	78.9	11.6	9.5
103	123	64.2	14.2	9.9	11.7	78.4	9.1	12.5	74.1	11.8	14.1
7	9	65.4	6.4	14.1	14.1	71.8	16.7	11.5	79.5	9.0	11.5
3	3	72.0	20.0	4.0	4.0	92.0	4.0	4.0	76.0	12.0	12.0
26	27	72.4	8.1	9.8	9.7	80.5	12.4	7.1	82.2	8.7	9.1
90	83	72.3	12.3	7.4	8.0	84.7	7.6	7.7	79.7	10.6	9.7
1	3	81.6	8.2	10.2	-----	89.8	4.1	6.1	91.8	2.1	6.1
65	38	69.7	10.2	9.3	10.8	79.9	11.4	8.7	79.1	13.2	7.7
102	49	64.7	11.7	11.1	12.5	76.4	15.6	8.0	75.8	16.3	7.9
351	288	78.4	9.6	6.5	5.5	88.0	7.0	5.0	84.9	8.3	6.8
59	47	72.8	12.1	6.9	8.2	84.9	8.2	6.9	79.7	11.3	9.0
16	18	75.2	9.7	8.3	6.8	85.0	8.2	6.8	83.5	7.8	8.7
34	37	67.9	12.5	8.8	10.8	80.3	9.2	10.5	76.7	11.2	12.1
13	25	75.2	9.6	7.4	7.8	84.9	10.1	5.0	82.6	5.9	11.5
81	87	73.0	9.6	9.1	8.3	82.6	10.3	7.1	82.2	8.6	9.2
28	20	70.9	9.7	10.5	8.9	80.6	12.4	7.0	81.4	10.9	7.7
28	16	64.7	13.0	9.4	12.9	77.7	13.5	8.8	74.1	16.5	9.4
2	1	75.0	12.5	6.3	6.2	87.5	6.3	6.2	81.3	12.5	6.2
16	18	68.6	16.0	9.6	5.8	84.6	10.9	4.5	78.2	10.3	11.5
14	10	76.3	8.6	7.9	7.2	84.9	8.5	6.6	84.2	9.2	6.6
35	39	72.2	12.7	7.4	7.7	84.8	9.1	6.1	79.6	9.6	10.8
15	9	75.6	12.2	6.1	6.1	87.8	7.6	4.6	81.7	11.4	6.9
1	2	86.7	6.7	3.3	3.3	93.3	6.7	-----	90.0	3.3	6.7
15	7	70.3	11.8	8.5	9.4	82.1	10.4	7.5	79.2	14.2	6.6
1	3	37.5	50.0	12.5	-----	87.5	12.5	-----	50.0	12.5	37.5
26	10	80.5	8.3	6.5	4.7	88.8	8.7	2.5	87.0	9.4	3.6
7	2	75.4	8.2	9.8	6.6	83.6	11.5	4.9	85.2	11.5	3.3
14	9	74.8	10.4	8.1	6.7	85.2	9.6	5.2	82.9	10.4	6.7
10	4	79.8	6.7	4.5	9.0	86.5	6.8	6.7	84.3	11.2	4.5
11	9	73.3	15.6	4.4	6.7	88.9	5.6	5.5	77.8	12.2	10.0

TABLE 14.—*Marriages classified by Number in Order and*

COUNTY.	Total Marriages.	Number of Marriage.				Groom.			
		First of Both Parties.	First of Groom Only.	First of Bride Only.	Second or Over of Both	Single.	Widowed	Divorced.	Single.
CALIFORNIA	21,739	16,120	2,305	1,624	1,690	18,425	2,026	1,288	17,744
Alameda	2,556	1,899	249	215	193	2,148	235	173	2,114
Alpine	-------	-------	-------	-------	-------	-------	-------	-------	-------
Amador	53	44	6	-------	3	50	3	-------	44
Butte	198	153	20	9	16	173	14	11	162
Calaveras	37	27	5	4	1	32	3	2	31
Colusa	29	22	2	1	4	24	3	2	23
Contra Costa	174	138	19	7	10	157	10	7	145
Del Norte	28	20	6	2	-------	26	-------	2	22
El Dorado	46	32	6	4	4	38	6	2	36
Fresno	696	543	54	55	44	597	61	38	593
Glenn	24	20	1	2	1	21	3	-------	22
Humboldt	273	216	25	9	23	241	20	12	225
Imperial	63	49	5	3	6	54	6	3	52
Inyo	29	18	5	2	4	23	3	3	20
Kern	212	162	19	10	21	181	23	8	172
Kings	145	109	23	9	4	132	9	4	118
Lake	44	37	2	2	3	39	2	3	39
Lassen	37	33	1	2	1	34	3	-------	35
Los Angeles	4,451	3,203	444	379	425	3,647	532	272	3,582
Madera	75	55	11	1	8	66	6	3	56
Marin	710	458	120	68	64	578	61	71	526
Mariposa	17	13	2	1	1	15	1	1	14
Mendocino	139	109	12	8	10	121	12	6	117
Merced	87	67	5	9	6	72	9	6	76
Modoc	40	34	4	1	1	38	2	-------	35
Mono	4	3	-------	1	-------	3	1	-------	4
Monterey	177	123	24	12	18	147	20	10	135
Napa	162	120	17	13	12	137	17	8	133
Nevada	111	92	9	5	5	101	7	3	97
Orange	620	400	88	57	75	488	69	63	457
Placer	71	56	7	3	5	63	8	-------	59
Plumas	13	9	3	1	-------	12	1	-------	10
Riverside	315	234	33	23	25	267	31	17	257
Sacramento	863	623	112	53	75	735	73	55	676
San Benito	59	44	7	5	3	51	3	5	49
San Bernardino	425	306	42	30	47	348	42	35	336
San Diego	578	373	75	60	70	448	88	42	433
San Francisco	4,035	3,165	414	264	192	3,579	273	183	3,429
San Joaquin	521	391	58	32	40	449	41	31	423
San Luis Obispo	211	171	13	13	14	184	15	12	184
San Mateo	281	190	46	26	19	236	25	20	216
Santa Barbara	216	168	15	17	16	183	22	11	185
Santa Clara	949	708	84	75	82	792	91	66	783
Santa Cruz	241	179	29	16	17	208	24	9	195
Shasta	128	92	19	7	10	111	12	5	99
Sierra	7	7	-------	-------	-------	7	-------	-------	7
Siskiyou	149	113	19	8	9	132	10	7	121
Solano	159	120	13	14	12	133	15	11	134
Sonoma	398	308	34	25	31	342	34	22	333
Stanislaus	137	109	10	11	7	119	10	8	120
Sutter	25	18	5	2	-------	23	1	1	20
Tehama	96	71	13	5	7	84	11	1	76
Trinity	8	6	1	1	-------	7	-------	1	7
Tulare	227	174	25	7	21	199	18	10	181
Tuolumne	56	40	6	2	8	46	6	4	42
Ventura	152	111	15	19	7	126	16	10	130
Yolo	105	83	11	7	4	94	7	4	90
Yuba	77	52	12	7	6	64	8	5	59

Marital Condition of Parties, with Per Cents, for Counties: 1908.

Bride.		Per Cent of Marriages.				Per Cent of Grooms.			Per Cent of Brides.		
Widowed.	Divorced	First of Both Parties.	First of Groom Only.	First of Bride Only.	Second or Over of Both.	Single.	Widowed.	Divorced	Single.	Widowed.	Divorced.
2,317	1,678	74.1	10.6	7.5	7.8	84.8	9.3	5.9	81.6	10.7	7.7
244	198	74.3	9.7	8.4	7.6	84.0	9.2	6.8	82.7	9.6	7.7
4	5	83.0	11.3	--------	5.7	94.3	5.7	--------	83.0	7.6	9.4
21	15	77.3	10.1	4.5	8.1	87.4	7.1	5.5	81.8	10.6	7.6
3	3	73.0	13.5	10.8	2.7	86.5	8.1	5.4	83.8	8.1	8.1
3	3	75.9	6.9	3.4	13.8	82.8	10.3	6.9	79.3	10.4	10.3
16	13	79.3	10.9	4.0	5.8	90.2	5.8	4.0	83.3	9.2	7.5
3	3	71.4	21.4	7.2	--------	92.9	--------	7.1	78.6	10.7	10.7
5	5	69.6	13.0	8.7	8.7	82.6	13.0	4.4	78.2	10.9	10.9
61	37	78.0	7.8	7.9	6.3	85.8	8.8	5.4	85.9	8.8	5.3
2	--------	83.3	4.2	8.3	4.2	87.5	12.5	--------	91.7	8.3	--------
30	18	79.1	9.2	3.3	8.4	88.3	7.3	4.4	82.4	11.0	6.6
7	4	77.8	7.9	4.8	9.5	85.7	9.5	4.8	82.5	11.1	6.4
4	5	62.1	17.2	6.9	13.8	79.3	10.4	10.3	69.0	17.2	13.8
25	15	76.4	9.0	4.7	9.9	85.4	10.8	3.8	81.1	11.8	7.1
10	17	75.2	15.9	6.2	2.7	91.0	6.2	2.8	81.4	6.9	11.7
3	2	84.1	4.6	4.5	6.8	88.6	4.6	6.8	88.6	6.8	4.6
--------	2	89.2	2.7	5.4	2.7	91.9	8.1	--------	94.6	--------	5.4
541	328	72.0	10.0	8.5	9.5	81.9	12.0	6.1	80.5	12.1	7.4
8	11	73.3	14.7	1.3	10.7	88.0	8.0	4.0	74.6	10.7	14.7
89	95	64.5	16.9	9.6	9.0	81.4	8.6	10.0	74.1	12.5	13.4
3	--------	76.5	11.7	5.9	5.9	88.2	5.9	5.9	82.4	17.6	--------
12	10	78.4	8.6	5.8	7.2	87.1	8.6	4.3	84.2	8.6	7.2
8	3	77.0	5.8	10.3	6.9	82.8	10.3	6.9	87.4	9.2	3.4
3	2	85.0	10.0	2.5	2.5	95.0	5.0	--------	87.5	7.5	5.0
--------	--------	75.0	--------	25.0	--------	75.0	25.0	--------	100.0	--------	--------
20	22	69.5	13.5	6.8	10.2	83.1	11.3	5.6	76.3	11.3	12.4
21	8	74.1	10.5	8.0	7.4	84.6	10.5	4.9	82.1	13.0	4.9
12	2	82.9	8.1	4.5	4.5	91.0	6.3	2.7	87.4	10.8	1.8
87	76	64.5	14.2	9.2	12.1	78.7	11.1	10.2	73.7	14.0	12.3
7	5	78.9	9.9	4.2	7.0	88.7	11.3	--------	83.1	9.9	7.0
1	2	69.2	23.1	7.7	--------	92.3	7.7	--------	76.9	7.7	15.4
35	23	74.3	10.5	7.3	7.9	84.8	9.8	5.4	81.6	11.1	7.3
96	91	72.2	13.0	6.1	8.7	85.2	8.4	6.4	78.3	11.1	10.6
7	3	74.6	11.8	8.5	5.1	86.4	5.1	8.5	83.0	11.9	5.1
57	32	72.0	9.9	7.0	11.1	81.9	9.9	8.2	79.1	13.4	7.5
88	57	64.5	13.0	10.4	12.1	77.5	15.2	7.3	74.9	15.2	9.9
355	251	78.4	10.3	6.5	4.8	88.7	6.8	4.5	85.0	8.8	6.2
61	37	75.1	11.1	6.1	7.7	86.2	7.9	5.9	81.2	11.7	7.1
19	8	81.0	6.2	6.2	6.6	87.2	7.1	5.7	87.2	9.0	3.8
34	31	67.6	16.4	9.2	6.8	84.0	8.9	7.1	76.9	12.1	11.0
21	10	77.8	6.9	7.9	7.4	84.7	10.2	5.1	85.7	9.7	4.6
82	84	74.6	8.9	7.9	8.6	83.5	9.6	6.9	82.5	8.6	8.9
32	14	74.3	12.0	6.6	7.1	86.3	10.0	3.7	80.9	13.3	5.8
16	13	71.9	14.8	5.5	7.8	86.7	9.4	3.9	77.3	12.5	10.2
--------	--------	100.0	--------	--------	--------	100.0	--------	--------	100.0	--------	--------
13	15	75.8	12.8	5.4	6.0	88.6	6.7	4.7	81.2	8.7	10.1
16	9	75.5	8.1	8.8	7.6	83.7	9.4	6.9	84.3	10.1	5.6
39	26	77.4	8.5	6.3	7.8	85.9	8.6	5.5	83.7	9.8	6.5
9	8	79.6	7.3	8.0	5.1	86.9	7.3	5.8	87.6	6.6	5.8
4	1	72.0	20.0	8.0	--------	92.0	4.0	4.0	80.0	16.0	4.0
14	6	74.0	13.5	5.2	7.3	87.5	11.5	1.0	79.2	14.6	6.2
1	--------	75.0	12.5	12.5	--------	87.5	--------	12.5	87.5	12.5	--------
23	23	76.7	11.0	3.1	9.2	87.7	7.9	4.4	79.8	10.1	10.1
11	3	71.4	10.7	3.6	14.3	82.1	10.7	7.2	75.0	19.6	5.4
13	9	73.0	9.9	12.5	4.6	82.9	10.5	6.6	85.5	8.6	5.9
8	7	79.0	10.5	6.7	3.8	89.5	6.7	3.8	85.7	7.6	6.7
10	8	67.5	15.6	9.1	7.8	83.1	10.4	6.5	76.6	13.0	10.4

TABLE 15.—*Brides classified by Race, Nativity, and Marital Condition, with*

GEOGRAPHIC DIVISION AND RACE OR NATIVITY OF BRIDE.	Brides.				Per Cent.		
	Total	Single.	Wid-owed.	Di-vorced.	Single.	Wid-owed.	Di-vorced.
THE STATE	22,917	18,689	2,293	1,935	81.6	10.0	8.4
White	22,449	18,333	2,218	1,898	81.7	9.9	8.4
Born in California	9,183	7,944	552	687	87.0	6.0	7.0
Born in other states*	9,043	6,922	1,117	1,004	76.5	12.4	11.1
Foreign born	4,273	3,467	549	257	81.1	12.9	6.0
Non-Caucasian	468	356	75	37	76.1	16.0	7.9
Northern California	2,081	1,679	218	184	80.7	10.5	8.8
White	2,054	1,663	209	182	81.0	10.2	8.8
Born in California	1,226	1,069	75	82	87.2	6.1	6.7
Born in other states*	597	413	94	90	69.2	15.7	15.1
Foreign born	231	181	40	10	78.4	17.3	4.3
Non-Caucasian	27	16	9	2	59.3	33.3	7.4
Coast counties	989	812	94	83	82.1	9.5	8.4
White	978	805	91	82	82.3	9.3	8.4
Born in California	564	496	29	39	88.0	5.1	6.9
Born in other states*	250	172	39	39	68.8	15.6	15.6
Foreign born	164	137	23	4	83.6	14.0	2.4
Non-Caucasian	11	7	3	1	63.6	27.3	9.1
Interior counties	1,092	867	124	101	79.4	11.4	9.2
White	1,076	858	118	100	79.7	11.0	9.3
Born in California	662	573	46	43	86.6	6.9	6.5
Born in other states*	347	241	55	51	69.5	15.8	14.7
Foreign born	67	44	17	6	65.7	25.4	8.9
Non-Caucasian	16	9	6	1	56.3	37.5	6.2
Central California	13,174	10,898	1,188	1,088	82.7	9.0	8.3
White	12,921	10,696	1,154	1,071	82.8	8.9	8.3
Born in California	6,252	5,431	371	450	86.9	5.9	7.2
Born in other states*	3,734	2,852	441	441	76.4	11.8	11.8
Foreign born	2,935	2,413	342	180	82.2	11.7	6.1
Non-Caucasian	253	202	34	17	79.9	13.4	6.7
San Francisco	4,214	3,575	351	288	84.9	8.3	6.8
White	4,085	3,452	347	286	84.5	8.5	7.0
Born in California	1,884	1,667	104	113	88.5	5.5	6.0
Born in other states*	924	691	118	115	73.8	12.8	12.4
Foreign born	1,277	1,094	125	58	85.7	9.8	4.5
Non-Caucasian	129	123	4	2	95.3	3.1	1.6
Other bay counties	3,790	3,052	364	374	80.5	9.6	9.9
White	3,727	3,014	351	362	80.9	9.4	9.7
Born in California	1,851	1,582	124	145	85.5	6.7	7.8
Born in other states*	1,114	833	127	154	74.8	11.4	13.8
Foreign born	762	599	100	63	78.6	13.1	8.3
Non-Caucasian	63	38	13	12	60.3	20.6	19.1
Coast counties	1,626	1,346	133	147	82.8	8.2	9.0
White	1,613	1,335	131	147	82.8	8.1	9.1
Born in California	867	754	43	70	87.0	4.9	8.1
Born in other states*	450	351	53	46	78.0	11.8	10.2
Foreign born	296	230	35	31	77.7	11.8	10.5
Non-Caucasian	13	11	2	----------	84.6	15.4	----------
Interior counties	3,544	2,925	340	279	82.5	9.6	7.9
White	3,496	2,895	325	276	82.8	9.3	7.9
Born in California	1,650	1,428	100	122	86.5	6.1	7.4
Born in other states*	1,246	977	143	126	78.4	11.5	10.1
Foreign born	600	490	82	28	81.7	13.7	4.6
Non-Caucasian	48	30	15	3	62.5	31.3	6.2

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*Includes those of unknown nativity, numbering in the entire State only 92, or 0.4 per cent.

Per Cent Distribution by Marital Condition, for Geographic Divisions: 1909.

GEOGRAPHIC DIVISION AND RACE OR NATIVITY OF BRIDE.	Brides.				Per Cent.		
	Total.	Single.	Wid-owed.	Di-vorced.	Single.	Wid-owed.	Di-vorced.
Southern California	7,662	6,112	887	663	79.8	11.6	8.6
White	7,474	5,974	855	645	79.9	11.5	8.6
Born in California	1,655	1,444	106	105	87.3	6.4	6.3
Born in other states*	4,712	3,657	582	473	77.6	12.4	10.0
Foreign born	1,107	873	167	67	78.9	15.1	6.0
Non-Caucasian	188	138	32	18	73.4	17.0	9.6
Los Angeles	4,948	4,009	553	386	81.0	11.2	7.8
White	4,804	3,908	525	371	81.4	10.9	7.7
Born in California	970	849	65	56	87.5	6.7	5.8
Born in other states*	3,079	2,452	356	271	79.6	11.6	8.8
Foreign born	755	607	104	44	80.4	13.8	5.8
Non-Caucasian	144	101	28	15	70.1	19.5	10.4
Other counties	2,714	2,103	334	277	77.5	12.3	10.2
White	2,670	2,066	330	274	77.4	12.3	10.3
Born in California	685	595	41	49	86.9	6.0	7.1
Born in other states*	1,633	1,205	226	202	73.8	13.8	12.4
Foreign born	352	266	63	23	75.6	17.9	6.5
Non-Caucasian	44	37	4	3	84.1	9.1	6.8
Northern and Central California	15,255	12,577	1,406	1,272	82.5	9.2	8.3
White	14,975	12,359	1,363	1,253	82.5	9.1	8.4
Born in California	7,478	6,500	446	532	86.9	6.0	7.1
Born in other states*	4,331	3,265	535	531	75.4	12.3	12.3
Foreign born	3,166	2,594	382	190	81.9	12.1	6.0
Non-Caucasian	280	218	43	19	77.9	15.3	6.8
Coast counties	10,619	8,785	942	892	82.7	8.9	8.4
White	10,403	8,606	920	877	82.7	8.9	8.4
Born in California	5,166	4,499	300	367	87.1	5.8	7.1
Born in other states*	2,738	2,047	337	354	74.8	12.3	12.9
Foreign born	2,499	2,060	283	156	82.4	11.3	6.3
Non-Caucasian	216	179	22	15	82.9	10.2	6.9
Interior counties	4,636	3,792	464	380	81.8	10.0	8.2
White	4,572	3,753	443	376	82.1	9.7	8.2
Born in California	2,312	2,001	146	165	86.6	6.3	7.1
Born in other states*	1,593	1,218	198	177	76.5	12.4	11.1
Foreign born	667	534	99	34	80.1	14.8	5.1
Non-Caucasian	64	39	21	4	60.9	32.8	6.3
Metropolitan area	8,004	6,627	715	662	82.8	8.9	8.3
White	7,812	6,466	698	648	82.8	8.9	8.3
Born in California	3,735	3,249	228	258	87.0	6.1	6.9
Born in other states*	2,038	1,524	245	269	74.8	12.0	13.2
Foreign born	2,039	1,693	225	121	83.0	11.1	5.9
Non-Caucasian	192	161	17	14	83.9	8.8	7.3
Rural counties	7,251	5,950	691	610	82.1	9.5	8.4
White	7,163	5,893	665	605	82.3	9.3	8.4
Born in California	3,743	3,251	218	274	86.9	5.8	7.3
Born in other states*	2,293	1,741	290	262	75.9	12.7	11.4
Foreign born	1,127	901	157	69	80.0	13.9	6.1
Non-Caucasian	88	57	26	5	64.8	29.5	5.7

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*Includes those of unknown nativity, numbering in the entire State only 92, or 0.4 per cent.

TABLE 16—*Brides classified by Race, Nativity, and Marital Condition, with Per Cent Distribution by Marital Condition, for Geographic Divisions: 1908.*

GEOGRAPHIC DIVISION AND RACE OR NATIVITY OF BRIDE.	Brides.				Per Cent.		
	Total.	Single.	Widowed.	Divorced.	Single.	Widowed.	Divorced.
THE STATE	21,739	17,744	2,317	1,678	81.6	10.7	7.7
White	21,822	17,443	2,238	1,641	81.8	10.5	7.7
Born in California	8,637	7,598	492	547	88.0	5.7	6.3
Born in other states*	8,352	6,363	1,123	866	76.2	13.4	10.4
Foreign born	4,333	3,482	623	228	80.3	14.4	5.3
Non-Caucasian	417	301	79	37	72.2	18.9	8.9
Northern California	2,057	1,701	215	141	82.7	10.4	6.9
White	2,031	1,682	210	139	82.8	10.3	6.9
Born in California	1,184	1,050	69	65	88.7	5.8	5.5
Born in other states*	580	429	90	61	74.0	15.5	10.5
Foreign born	267	203	51	13	76.0	19.1	4.9
Non-Caucasian	26	19	5	2	73.1	19.2	7.7
Coast counties	1,052	876	109	67	83.3	10.3	6.4
White	1,040	864	109	67	83.1	10.5	6.4
Born in California	589	518	36	35	88.0	6.1	5.9
Born in other states*	255	196	37	22	76.9	14.5	8.6
Foreign born	196	150	36	10	76.5	18.4	5.1
Non-Caucasian	12	12	----	----	100.0	----	----
Interior counties	1,005	825	106	74	82.1	10.5	7.4
White	991	818	101	72	82.5	10.2	7.3
Born in California	595	532	33	30	89.4	5.6	5.0
Born in other states*	325	233	53	39	71.7	16.3	12.0
Foreign born	71	53	15	3	74.7	21.1	4.2
Non-Caucasian	14	7	5	2	50.0	35.7	14.3
Central California	12,862	10,611	1,253	998	82.5	9.7	7.8
White	12,653	10,447	1,222	984	82.5	9.7	7.8
Born in California	6,106	5,327	362	417	87.3	5.9	6.8
Born in other states*	3,586	2,703	465	418	75.4	13.0	11.6
Foreign born	2,961	2,417	395	149	81.6	13.4	5.0
Non-Caucasian	209	164	31	14	78.5	14.8	6.7
San Francisco	4,035	3,429	355	251	85.0	8.8	6.2
White	3,970	3,370	350	250	84.9	8.8	6.3
Born in California	1,815	1,607	107	101	88.5	5.9	5.6
Born in other states*	873	680	102	91	77.9	11.7	10.4
Foreign born	1,282	1,083	141	58	84.5	11.0	4.5
Non-Caucasian	65	59	5	1	90.8	7.7	1.5
Other bay counties	3,721	3,001	383	337	80.6	10.3	9.1
White	3,650	2,951	370	329	80.9	10.1	9.0
Born in California	1,743	1,509	97	137	86.6	5.6	7.8
Born in other states*	1,098	812	145	141	74 0	13.2	12.8
Foreign born	809	630	128	51	77.9	15.8	6.3
Non-Caucasian	71	50	13	8	70.4	18.3	11.3
Coast counties	1,637	1,346	160	131	82.2	9.8	8.0
White	1,621	1,337	155	129	82.5	9.6	7.9
Born in California	886	775	55	56	87.5	6.2	6.3
Born in other states*	445	333	54	58	74.8	12.2	13.0
Foreign born	290	229	46	15	79.0	15.8	5.2
Non-Caucasian	16	9	5	2	56.3	31.2	12.5
Interior counties	3,469	2,835	355	279	81.7	10.2	8.1
White	3,412	2,789	347	276	81.7	10.2	8.1
Born in California	1,662	1,436	103	123	86.4	6.2	7.4
Born in other states*	1,170	878	164	128	75.1	14.0	10.9
Foreign born	580	475	80	25	81.9	13.8	4.3
Non-Caucasian	57	46	8	3	80.7	14.0	5.3

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*Includes those of unknown nativity, numbering in the entire State only 113, or 0.5 per cent.

TABLE 16—*Brides classified by Race, Nativity, and Marital Condition, with Per Cent Distribution by Marital Condition, for Geographic Divisions: 1908.*—Continued.

GEOGRAPHIC DIVISION AND RACE OR NATIVITY OF BRIDE.	Brides.				Per Cent.		
	Total.	Single.	Widowed.	Divorced	Single.	Widowed.	Divorced.
Southern California	6,820	5,432	849	539	79.6	12.5	7.9
White	6,638	5,314	806	518	80.1	12.1	7.8
Born in California	1,347	1,221	61	65	90.7	4.5	4.8
Born in other states*	4,186	3,231	568	387	77.2	13.6	9.2
Foreign born	1,105	862	177	66	78.0	16.0	6.0
Non-Caucasian	182	118	43	21	64.9	23.6	11.5
Los Angeles	4,451	3,582	541	328	80.5	12.1	7.4
White	4,309	3,490	508	311	81.0	11.8	7.2
Born in California	771	697	34	40	90.4	4.4	5.2
Born in other states*	2,784	2,188	367	229	78.6	13.2	8.2
Foreign born	754	605	107	42	80.2	14.2	5.6
Non-Caucasian	142	92	33	17	64.8	23.2	12.0
Other countries	2,369	1,850	308	211	78.1	13.0	8.9
White	2,329	1,824	298	207	78.3	12.8	8.9
Born in California	576	524	27	25	91.0	4.7	4.3
Born in other states*	1,402	1,043	201	158	74.4	14.3	11.3
Foreign born	351	257	70	24	73.2	20.0	6.8
Non-Caucasian	40	26	10	4	65.0	25.0	10.0
Northern and Central California	14,919	12,312	1,468	1,139	82.5	9.9	7.6
White	14,684	12,129	1,432	1,123	82.6	9.8	7.6
Born in California	7,290	6,377	431	482	87.5	5.9	6.6
Born in other states*	4,166	3,132	555	479	75.2	13.3	11.5
Foreign born	3,228	2,620	446	162	81.2	13.8	5.0
Non-Caucasian	235	183	36	16	77.9	15.3	6.8
Coast counties	10,445	8,652	1,007	786	82.8	9.7	7.5
White	10,281	8,522	984	775	82.9	9.6	7.5
Born in California	5,033	4,409	295	329	87.6	5.9	6.5
Born in other states*	2,671	2,021	338	312	75.7	12.6	11.7
Foreign born	2,577	2,092	351	134	81.2	13.6	5.2
Non-Caucasian	164	130	23	11	79.3	14.0	6.7
Interior counties	4,474	3,660	461	353	81.8	10.3	7.9
White	4,403	3,607	448	348	81.9	10.2	7.9
Born in California	2,257	1,968	136	153	87.2	6.0	6.8
Born in other states*	1,495	1,111	217	167	74.3	14.5	11.2
Foreign born	651	528	95	28	81.1	14.6	4.3
Non-Caucasian	71	53	13	5	74.7	18.3	7.0
Metropolitan area	7,756	6,430	738	588	82.9	9.5	7.6
White	7,620	6,321	720	579	83.0	9.4	7.6
Born in California	3,558	3,116	204	238	87.6	5.7	6.7
Born in other states*	1,971	1,492	247	232	75.7	12.5	11.8
Foreign born	2,091	1,713	269	109	81.9	12.9	5.2
Non-Caucasian	136	109	18	9	80.2	13.2	6.6
Rural counties	7,163	5,882	730	551	82.1	10.2	7.7
White	7,064	5,808	712	544	82.2	10.1	7.7
Born in California	3,732	3,261	227	244	87.4	6.1	6.5
Born in other states*	2,195	1,640	308	247	74.7	14.0	11.3
Foreign born	1,137	907	177	53	79.8	15.6	4.6
Non-Caucasian	99	74	18	7	74.7	18.2	7.1

*Includes those of unknown nativity, numbering in the entire State only 113, or 0.5 per cent.

TABLE 17.—*White Brides classified by Marital Condition and Nativity, with Per Cent Distribution by Nativity, for Geographic Divisions: 1909.*

GEOGRAPHIC DIVISION AND MARITAL CONDITION OF BRIDE.	White Brides.				Per Cent.		
	Total.	Born in California.	Born in Other States.*	Foreign Born.	Born in California	Born in Other States.	Foreign Born.
THE STATE	22,449	9,128	9,048	4,273	40.7	40.3	19.0
Single	18,333	7,944	6,922	3,467	43.3	37.8	18.9
Widowed	2,218	552	1,117	549	24.9	50.4	24.7
Divorced	1,898	637	1,004	257	33.6	52.9	13.5
Northern California	2,054	1.226	597	231	59.7	29.1	11.2
Single	1,663	1,069	413	181	64.3	24.8	10.9
Widowed	209	75	94	40	35.9	45.0	19.1
Divorced	182	82	90	10	45.1	49.4	5.5
Coast counties	978	564	250	164	57.7	25.5	16.8
Single	805	496	172	137	61.6	21.4	17.0
Widowed	91	29	38	23	31.9	41.8	25.3
Divorced	82	39	39	4	47.6	47.5	4.9
Interior counties	1,076	662	347	67	61.5	32.3	6.2
Single	858	573	241	44	66.8	28.1	5.1
Widowed	118	46	55	17	39.0	46.6	14.4
Divorced	100	43	51	6	43.0	51.0	6.0
Central California	12,921	6,252	3,734	2,935	48.4	28.9	22.7
Single	10,696	5,431	2,852	2,413	50.8	26.6	22.6
Widowed	1,154	371	441	342	32.2	38.2	29.6
Divorced	1,071	450	441	180	42.0	41.2	16.8
San Francisco	4,085	1,884	924	1,277	46.1	22.6	31.3
Single	3,452	1,667	691	1,094	48.3	20.0	31.7
Widowed	347	104	118	125	30.0	34.0	36.0
Divorced	286	113	115	58	39.5	40.2	20.3
Other bay counties	3,727	1,851	1,114	762	49.7	29.9	20.4
Single	3,014	1,582	833	599	52.5	27.6	19.9
Widowed	351	124	127	100	35.3	36.2	28.5
Divorced	362	145	154	63	40.1	42.5	17.4
Coast counties	1,613	867	450	296	53.7	27.9	18.4
Single	1,335	754	351	230	56.5	26.3	17.2
Widowed	131	43	53	35	32.8	40.5	26.7
Divorced	147	70	46	31	47.6	31.3	21.1
Interior counties	3,496	1,650	1,246	600	47.2	35.6	17.2
Single	2,895	1,428	977	490	49.4	33.7	16.9
Widowed	325	100	143	82	30.8	44.0	25.2
Divorced	276	122	126	28	44.2	45.7	10.1
Southern California	7,474	1,655	4,712	1,107	22.1	63.1	14.8
Single	5,974	1,444	3,657	873	24.2	61.2	14.6
Widowed	855	106	582	167	12.4	68.1	19.5
Divorced	645	105	473	67	16.3	73.3	10.4
Los Angeles	4,804	970	3,079	755	20.2	64.1	15.7
Single	3,908	849	2,452	607	21.7	62.8	15.5
Widowed	525	65	356	104	12.4	67.8	19.8
Divorced	371	56	271	44	15.1	73.0	11.9
Other counties	2,670	685	1,633	352	25.6	61.2	13.2
Single	2,066	595	1,205	266	28.8	58.3	12.9
Widowed	330	41	226	63	12.4	68.5	19.1
Divorced	274	49	202	23	17.9	73.7	8.4
Northern and Central California	14,975	7,478	4,331	3,166	49.9	28.9	21.2
Single	12,359	6,500	3,265	2,594	52.6	26.4	21.0
Widowed	1,363	446	535	382	32.7	39.3	28.0
Divorced	1,253	532	531	190	42.4	42.4	15.2
Coast counties	10,403	5,166	2,738	2,499	49.7	26.3	24.0
Single	8,606	4,499	2,047	2,060	52.3	23.8	23.9
Widowed	920	300	337	283	32.6	36.6	30.8
Divorced	877	367	354	156	41.8	40.4	17.8
Interior counties	4,572	2,312	1,593	667	50.6	34.8	14.6
Single	3,753	2,001	1,218	534	53.3	32.5	14.2
Widowed	443	146	198	99	33.0	44.7	22.3
Divorced	376	165	177	34	43.9	47.1	9.0
Metropolitan area	7,812	3,735	2,038	2,039	47.8	26.1	26.1
Single	6,466	3,249	1,524	1,693	50.2	23.6	26.2
Widowed	698	228	245	225	32.7	35.1	32.2
Divorced	648	258	269	121	39.8	41.5	18.7
Rural counties	7,163	3,743	2,293	1,127	52.3	32.0	15.7
Single	5,893	3,251	1,741	901	55.2	29.5	15.3
Widowed	665	218	290	157	32.8	43.6	23.6
Divorced	605	274	262	69	45.3	43.3	11.4

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*Includes those of unknown nativity, numbering in the entire State only 92, or 0.4 per cent.

TABLE 18.—*White Brides classified by Marital Condition and Nativity, with Per Cent Distribution by Nativity, for Geographic Divisions: 1908.*

GEOGRAPHIC DIVISION AND MARITAL CONDITION OF BRIDE.	White Brides.				Per Cent.		
	Total.	Born in California.	Born in Other States *	Foreign Born.	Born in California.	Born in Other States	Foreign Born.
THE STATE	21,322	8,637	8,352	4,333	40.5	39.2	20.3
Single	17,443	7,598	6,363	3,482	43.5	36.5	20.0
Widowed	2,238	492	1,123	623	22.0	50.2	27.8
Divorced	1,641	547	866	228	33.3	52.8	13.9
Northern California	2,031	1,184	580	267	58.3	28.6	13.1
Single	1,682	1,050	429	203	62.4	25.5	12.1
Widowed	210	69	90	51	32.8	42.9	24.3
Divorced	139	65	61	13	46.8	43.9	9.3
Coast counties	1,040	589	255	196	56.6	24.5	18.9
Single	864	518	196	150	59.9	22.7	17.4
Widowed	109	36	37	36	33.0	34.0	33.0
Divorced	67	35	22	10	52.3	32.8	14.9
Interior counties	991	595	325	71	60.0	32.8	7.2
Single	818	532	233	53	65.0	28.5	6.5
Widowed	101	33	53	15	32.7	52.5	14.8
Divorced	72	30	39	3	41.7	54.2	4.1
Central California	12,653	6,106	3,586	2,961	48.3	28.3	23.4
Single	10,447	5,327	2,703	2,417	51.0	25.9	23.1
Widowed	1,222	362	465	395	29.6	38.1	32.3
Divorced	984	417	418	149	42.4	42.5	15.1
San Francisco	3,970	1,815	873	1,282	45.7	22.0	32.3
Single	3,370	1,607	680	1,083	47.7	20.2	32.1
Widowed	350	107	102	141	30.6	29.1	40.3
Divorced	250	101	91	58	40.4	36.4	23.2
Other bay counties	3,650	1,743	1,098	809	47.7	30.1	22.2
Single	2,951	1,509	812	630	51.1	27.5	21.4
Widowed	370	97	145	128	26.2	39.2	34.6
Divorced	329	137	141	51	41.6	42.9	15.5
Coast counties	1,621	886	445	290	54.7	27.4	17.9
Single	1,337	775	333	229	58.0	24.9	17.1
Widowed	155	55	54	46	35.5	34.8	29.7
Divorced	129	56	58	15	43.4	45.0	11.6
Interior counties	3,412	1,662	1,170	580	48.7	34.3	17.0
Single	2,789	1,436	878	475	51.5	31.5	17.0
Widowed	347	103	164	80	29.7	47.3	23.0
Divorced	276	123	128	25	44.6	46.4	9.0
Southern California	6,638	1,347	4,186	1,105	20.3	63.1	16.6
Single	5,314	1,221	3,231	862	23.0	60.8	16.2
Widowed	806	61	568	177	7.6	70.5	21.9
Divorced	518	65	387	66	12.6	74.7	12.7
Los Angeles	4,309	771	2,784	754	17.9	64.6	17.5
Single	3,490	697	2,188	605	20.0	62.7	17.3
Widowed	508	34	367	107	6.7	72.2	21.1
Divorced	311	40	229	42	12.9	73.6	13.5
Other counties	2,329	576	1,402	351	24.7	60.2	15.1
Single	1,824	524	1,043	257	28.7	57.2	14.1
Widowed	298	27	201	70	9.1	67.4	23.5
Divorced	207	25	158	24	12.1	76.3	11.6
Northern and Central California	14,684	7,290	4,166	3,228	49.6	28.4	22.0
Single	12,129	6,377	3,132	2,620	52.6	25.8	21.6
Widowed	1,432	431	555	446	30.1	38.8	31.1
Divorced	1,123	482	479	162	42.9	42.7	14.4
Coast counties	10,281	5,033	2,671	2,577	48.9	26.0	25.1
Single	8,522	4,409	2,021	2,092	51.7	23.7	24.6
Widowed	984	295	338	351	30.0	34.3	35.7
Divorced	775	329	312	134	42.4	40.3	17.3
Interior counties	4,403	2,257	1,495	651	51.3	33.9	14.8
Single	3,607	1,968	1,111	528	54.6	30.8	14.6
Widowed	448	136	217	95	30.4	48.4	21.2
Divorced	348	153	167	28	44.0	48.0	8.0
Metropolitan area	7,620	3,558	1,971	2,091	46.7	25.9	27.4
Single	6,321	3,116	1,492	1,713	49.3	23.6	27.1
Widowed	720	204	247	269	28.3	34.3	37.4
Divorced	579	238	232	109	41.1	40.1	18.8
Rural counties	7,064	3,732	2,195	1,137	52.8	31.1	16.1
Single	5,808	3,261	1,640	907	56.2	28.2	15.6
Widowed	712	227	308	177	31.9	43.2	24.9
Divorced	544	244	247	53	44.9	45.4	9.7

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*Includes those of unknown nativity, numbering in the entire State only 113, or 0.5 per cent.

TABLE 19.—*Brides classified by Race, Nativity, and*

COUNTY.	Single Brides.						
	Total.	White.				Non-Caucasian.	Total.
		Total.	Born in California.	Born in Other States.*	Foreign Born		
CALIFORNIA	18,689	18,333	7,944	6,922	3,467	356	2,293
Alameda	2,041	2,005	998	572	435	36	219
Alpine	1	1	1				
Amador	52	52	41	4	7		3
Butte	151	150	94	51	5	1	23
Calaveras	24	24	15		9		4
Colusa	24	24	22	2			
Contra Costa	130	130	66	24	40		18
Del Norte	9	9	6	3			8
El Dorado	33	33	27	5	1		3
Fresno	573	571	181	258	132	2	50
Glenn	30	30	21	8	1		3
Humboldt	243	239	128	55	56	4	16
Imperial	60	60	13	40	7		11
Inyo	35	33	18	12	3	2	
Kern	205	203	78	95	30	2	26
Kings	175	172	76	53	43	3	15
Lake	27	27	25	2			4
Lassen	27	26	20	6		1	1
Los Angeles	4,009	3,908	849	2,452	607	101	553
Madera	44	43	22	16	5	1	5
Marin	647	647	372	177	98		93
Mariposa	9	8	6	2		1	2
Mendocino	127	125	81	18	26	2	16
Merced	72	72	32	16	24		10
Modoc	37	37	25	12			3
Mono	4	4	2	1	1		1
Monterey	146	144	96	31	17	2	7
Napa	113	112	66	28	18	1	14
Nevada	75	75	60	12	3		11
Orange	645	640	167	411	62	5	103
Placer	62	62	38	20	4		7
Plumas	19	19	14	5			3
Riverside	244	237	56	160	21	7	26
Sacramento	680	668	395	172	101	12	90
San Benito	45	45	34	5	6		1
San Bernardino	389	382	94	227	61	7	65
San Diego	473	457	122	256	79	16	102
San Francisco	3,575	3,452	1,667	691	1,094	123	351
San Joaquin	416	413	234	111	68	3	59
San Luis Obispo	172	172	109	47	16		16
San Mateo	234	232	146	60	26	2	34
Santa Barbara	180	179	91	65	23	1	13
Santa Clara	773	764	401	208	155	9	81
Santa Cruz	210	210	114	60	36		28
Shasta	126	124	88	28	8	2	28
Sierra	13	13	13				2
Siskiyou	122	119	63	42	14	3	16
Solano	128	126	79	34	13	2	14
Sonoma	289	289	186	66	37		35
Stanislaus	107	106	40	45	21	1	15
Sutter	27	27	16	11			1
Tehama	84	83	52	27	4	1	15
Trinity	4	4	4				1
Tulare	240	239	93	125	21	1	26
Tuolumne	52	52	32	12	8		7
Ventura	112	111	52	46	13	1	14
Yolo	75	75	56	16	3		10
Yuba	70	69	47	17	5	1	11

*Includes those of unknown nativity, numbering in the entire State only 92 (sin

Marital Condition, for Counties: 1909.

Widowed Brides.					Divorced Brides					
White.				Non-Caucasian.	Total.	White.				Non-Caucasian.
Total.	Born in California.	Born in Other States.*	Born.			Total.	Born in California.	Born in Other States *	Foreign Born.	
2,218	552	1,117	549	75	1,935	1,898	637	1,004	257	37
206	65	77	64	13	209	199	68	89	42	10
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3	-----	1	2	-----	2	2	1	-----	1	-----
22	6	14	2	1	19	19	6	13	-----	-----
4	2	1	1	-----	2	2	1	1	-----	-----
-----	-----	-----	-----	-----	1	1	1	-----	-----	-----
18	6	6	6	-----	16	16	10	6	-----	-----
7	-----	7	-----	1	3	3	1	2	-----	-----
3	2	1	-----	-----	7	7	7	-----	-----	-----
49	10	27	12	1	50	49	18	26	5	1
3	-----	3	-----	-----	1	1	1	-----	-----	-----
15	5	4	6	1	11	10	4	6	-----	1
10	4	3	3	1	6	6	1	5	-----	-----
-----	-----	-----	-----	-----	2	2	-----	2	-----	-----
24	5	16	3	2	27	27	9	16	2	-----
15	5	5	5	-----	9	9	5	3	1	-----
4	2	2	-----	-----	2	2	1	1	-----	-----
1	1	-----	-----	-----	2	2	2	-----	-----	-----
525	65	356	104	28	386	371	56	271	44	15
4	1	3	-----	1	8	8	2	6	-----	-----
93	40	31	22	-----	112	111	49	48	14	1
2	2	-----	-----	-----	1	1	1	-----	-----	-----
15	4	9	2	1	12	12	9	3	-----	-----
9	2	2	5	1	6	6	2	3	1	-----
3	2	1	-----	-----	4	4	3	1	-----	-----
1	-----	1	-----	-----	-----	-----	-----	-----	-----	-----
6	2	2	2	1	19	19	11	7	1	-----
14	3	4	7	-----	13	13	5	7	1	-----
11	6	3	2	-----	9	9	5	4	-----	-----
102	9	78	15	1	123	123	15	96	12	-----
7	3	4	-----	-----	9	9	4	3	2	-----
3	1	2	-----	-----	3	3	1	2	-----	-----
26	4	20	2	-----	27	27	3	22	2	-----
88	34	36	18	2	83	82	38	35	9	1
1	1	-----	-----	-----	3	3	1	-----	2	-----
64	9	48	7	1	38	36	7	26	3	2
101	7	62	32	1	49	48	11	33	4	1
347	104	118	125	4	288	286	113	115	58	2
57	14	22	21	2	47	47	20	19	8	-----
15	6	6	3	1	18	18	10	4	4	-----
34	13	13	8	-----	37	36	18	11	7	1
13	4	7	2	-----	25	25	10	13	2	-----
81	26	32	23	-----	87	87	38	29	20	-----
28	8	13	7	-----	20	20	10	6	4	-----
27	11	9	7	1	16	15	6	8	1	1
2	1	1	-----	-----	1	1	1	-----	-----	-----
12	2	8	2	4	18	18	6	11	1	-----
10	4	3	3	4	10	9	6	2	1	1
35	15	12	8	-----	39	39	17	19	3	-----
13	3	4	6	2	9	9	5	4	-----	-----
1	-----	1	-----	-----	2	2	-----	2	-----	-----
15	8	4	3	-----	7	7	4	2	1	-----
1	-----	1	-----	-----	3	3	2	1	-----	-----
26	8	17	1	-----	10	10	2	8	-----	-----
7	3	1	3	-----	2	2	1	1	-----	-----
14	4	8	2	-----	9	9	2	7	-----	-----
10	5	3	2	-----	4	4	4	-----	-----	-----
11	5	5	1	-----	9	9	3	5	1	-----

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gle 79, widowed 7, and divorced 6), or 0.4 per cent.

TABLE 20.—*Brides classified by Race, Nativity, and*

COUNTY.	Single Brides.						
	Total.	White.				Non-Caucasian.	Total.
		Total.	Born in California.	Born in Other States.*	Foreign Born.		
CALIFORNIA	17,744	17,443	7,598	6,363	3,482	301	2,317
Alameda	2,114	2,067	1,001	82	484	47	244
Alpine	----	----	----	----	----	----	----
Amador	44	43	28	4	11	1	4
Butte	162	161	97	55	9	1	21
Calaveras	31	31	21	2	8	----	3
Colusa	23	23	20	2	1	----	3
Contra Costa	145	145	75	34	36	----	16
Del Norte	22	20	8	11	1	2	3
El Dorado	36	35	28	5	2	1	5
Fresno	598	588	179	254	155	10	61
Glenn	22	22	15	5	2	----	2
Humboldt	225	219	134	28	57	6	30
Imperial	52	52	10	37	5	----	7
Inyo	20	20	7	10	3	----	4
Kern	172	171	79	63	29	1	25
Kings	118	115	48	46	21	3	10
Lake	39	38	26	11	1	1	3
Lassen	35	35	26	8	1	----	----
Los Angeles	3,582	3,490	697	2,188	605	92	541
Madera	56	56	32	15	9	----	8
Marin	526	524	308	138	78	2	39
Mariposa	14	13	10	3	----	1	3
Mendocino	117	116	81	10	25	1	12
Merced	76	76	44	12	20	----	3
Modoc	35	35	31	3	1	----	3
Mono	4	4	1	1	2	----	----
Monterey	135	134	96	25	13	1	20
Napa	133	133	74	42	17	----	21
Nevada	97	97	68	19	10	----	12
Orange	457	453	103	306	44	4	37
Placer	59	58	31	22	5	1	7
Plumas	10	9	8	1	----	1	1
Riverside	257	248	64	150	34	9	35
Sacramento	676	662	404	158	100	14	96
San Benito	49	49	34	10	5	----	7
San Bernardino	336	332	91	195	46	4	57
San Diego	433	426	106	249	71	7	83
San Francisco	3,429	3,370	1,607	680	1,083	59	365
San Joaquin	423	414	246	112	56	9	61
San Luis Obispo	184	184	118	36	30	----	19
San Mateo	216	215	125	58	32	1	34
Santa Barbara	185	184	90	62	32	1	21
Santa Clara	783	776	417	210	149	7	82
Santa Cruz	195	194	110	52	32	1	32
Shasta	99	98	69	24	5	1	16
Sierra	7	7	5	2	----	----	----
Siskiyou	121	119	74	37	8	2	13
Solano	134	131	82	34	15	3	16
Sonoma	333	331	189	93	49	2	39
Stanislaus	120	120	58	40	22	----	9
Sutter	20	20	10	9	1	----	4
Tehama	76	76	36	34	6	----	14
Trinity	7	7	6	1	----	----	1
Tulare	181	178	82	82	14	3	23
Tuolumne	42	42	31	9	2	----	11
Ventura	130	129	60	44	25	1	13
Yolo	90	90	56	28	6	----	8
Yuba	59	58	42	12	4	1	10

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*Includes those of unknown nativity, numbering in the entire State only 113 (sin

Marital Condition, for Counties: 1908.

Widowed Brides.					Divorced Brides.					
White.				Non-Caucasian.	Total.	White.				Non-Caucasian.
Total.	Born in California.	Born in Other States.*	Foreign Born.			Total.	Born in California.	Born in Other States.*	Foreign Born.	
2,238	492	1,123	623	79	1,678	1,641	547	866	228	37
231	51	91	89	13	198	193	72	85	36	5
4	2	1	1	-----	5	5	4	1	-----	-----
17	6	10	1	4	15	15	5	9	1	-----
3	2	-----	1	-----	3	3	2	1	-----	-----
3	2	-----	1	-----	3	3	1	2	-----	-----
16	4	6	6	-----	13	13	6	5	2	-----
3	3	-----	-----	-----	3	3	3	-----	-----	-----
5	2	2	1	-----	5	5	4	1	-----	-----
60	15	27	18	1	37	36	13	20	3	1
2	2	-----	-----	-----	-----	-----	-----	-----	-----	-----
30	8	11	11	-----	18	18	10	4	4	-----
7	-----	4	3	-----	4	4	-----	4	-----	-----
4	2	2	-----	-----	5	5	2	2	1	-----
22	5	13	4	3	15	14	4	7	3	1
10	1	8	1	-----	17	17	3	12	2	-----
3	-----	2	1	-----	2	2	1	1	-----	-----
-----	-----	-----	-----	-----	2	2	1	1	-----	-----
508	34	367	107	33	328	311	40	229	42	17
8	2	2	4	-----	11	11	4	6	1	-----
89	31	35	23	-----	95	94	47	35	12	1
3	-----	3	-----	-----	-----	-----	-----	-----	-----	-----
12	4	4	4	-----	10	10	2	6	2	-----
8	2	6	-----	-----	3	3	2	1	-----	-----
3	1	2	-----	-----	2	2	-----	2	-----	-----
17	8	6	3	3	22	21	14	6	1	1
21	9	7	5	-----	8	8	5	3	-----	-----
12	4	5	3	-----	2	2	1	1	-----	-----
87	6	60	21	-----	76	76	9	60	7	-----
7	1	5	1	-----	5	4	2	2	-----	1
1	-----	1	-----	-----	2	2	1	-----	1	-----
31	-----	26	5	4	23	22	3	17	2	1
93	30	45	18	3	91	90	44	40	6	1
6	2	2	2	1	3	3	1	2	-----	-----
55	2	37	16	2	32	31	4	25	2	1
84	11	57	16	4	57	55	4	42	9	2
350	107	102	141	5	251	250	101	91	58	1
61	18	24	19	-----	37	37	16	13	8	-----
18	6	10	3	1	8	5	3	5	-----	-----
34	11	13	10	-----	31	29	12	16	1	2
21	4	12	5	-----	10	10	3	6	1	-----
82	26	27	29	-----	84	83	29	41	13	1
32	13	10	9	-----	14	14	9	4	1	-----
16	3	10	3	-----	13	13	4	8	1	-----
12	3	8	1	1	15	15	5	10	-----	-----
15	9	2	5	1	9	9	7	2	-----	-----
39	11	13	15	-----	26	26	14	8	4	-----
9	2	4	3	-----	8	8	4	3	1	-----
4	1	3	-----	-----	1	1	1	-----	-----	-----
14	5	4	5	-----	6	6	6	-----	-----	-----
1	1	-----	-----	-----	-----	-----	-----	-----	-----	-----
23	5	14	4	-----	23	23	10	13	-----	-----
11	4	6	1	-----	3	3	1	2	-----	-----
13	4	5	4	-----	9	9	2	4	3	-----
8	2	5	-----	-----	7	7	3	4	-----	-----
10	5	5	-----	-----	8	7	3	4	-----	1

gle 86, widowed 13, and divorced 14), or 0.5 per cent.

DEPARTMENT OF PURE FOODS AND DRUGS.

INTRODUCTION.

The following data represents the second biennial report of the Director of the State Food and Drug Laboratory. The period covered by the work is from August 1, 1908, to August 1, 1910, during which time 2,800 samples were received at the Laboratory, of which 2,400 were examined and are included in the work here reported. Four hundred of the samples included are those which are termed unofficial samples, that is, samples not taken in accordance with the provisions of the law, but simply for the purpose of either preliminary examination or for some point of interest in connection with the food or drug in question. Among the 400 were also samples which were officially taken, but the examination of which was not possible for various reasons. The package may have been broken in transit or the label may have been incomplete, etc. A larger number of samples would have been collected and examined during the past year had it not been for the fact that the moving of the State Laboratory from the Agricultural Building to the annex of the Fertilizer Control Building necessitated for the time being a cessation of work, and required the time of the staff in fitting up and arranging the new laboratory for routine and office work.

ORGANIZATION.

The organization charged with the enforcement of the law includes: (1) inspectors who procure samples for analysis and information regarding the manufacture and sale of foods and drugs; (2) chemists and clerks, in the laboratories of the State Board of Health, University of California, Berkeley, Cal.; (3) the Board of Food and Drug Inspection, which consists of the Secretary of the State Board of Health, the attorney for the State Board of Health, and the Director of the State Laboratory. The duties of this board are to consider all questions arising in the enforcement of the food and drug act of March 11, 1907, and to consider and supervise all correspondence involving interpretation of the law and questions arising under the law.

INSPECTORS.

There are three regularly appointed inspectors—two for the northern part of the State and one for Los Angeles and vicinity. It is readily seen that such a number is inadequate to cope with the situation as it at present exists in this State.

DUTIES OF INSPECTORS.

The duties of the inspectors are as follows: (1) to investigate the wholesale and retail markets and obtain samples of foods and drugs manufactured and sold in the State; (2) to inspect manufacturing establishments and secure information in regard to the nature of the foods manufactured; (3) to investigate the manufacture and use of substances which are or may be employed for the adulteration of foods and drugs and methods of preparation which may lead to the damage or deterioration of foods and drugs, or to the use of improper materials in their manufacture; (4) to inspect and report upon the sanitary conditions of all places where food is manufactured, sold, or offered for sale. The inspectors report periodically to the Laboratory at Berkeley, and mail weekly statements of the work done, to the Secretary of the State Board of Health at Sacramento. Inspectors do not maintain offices, and spend but a small portion of their time at the Laboratory.

COLLECTION OF SAMPLES.

Three samples are taken by the inspector and are officially labeled and sealed. One is left with the party whose store or establishment is being inspected; the second is sent to the Laboratory at Berkeley for examination and analysis, and the third is forwarded to the Secretary of the State Board of Health, Sacramento, California.

HEARINGS.

Whenever an examination or analysis by the Director of the State Laboratory shows that any of the provisions of the food or drugs acts have been violated, notice of that fact, together with a copy of the certificate of findings, is furnished to the party or parties from whom the sample was obtained or who executed the guaranty, as provided in this act, and date is fixed by the Secretary of the State Board of Health, at which said party or parties may be heard before the State Board of Health, or before any two members thereof and the Secretary. These hearings are held in the city of Sacramento, and at least fifteen days' notice thereof shall be served upon the party complained of. These hearings shall be private, and confined to questions of fact. Parties interested therein may appear in person or by attorney, and may propound interrogatories and submit oral or written evidence to show any fault or error in the findings made by the Director of the State Laboratory. If the examination or analysis be found correct, or if the party or parties fail to appear at such hearing after notice duly served as provided herein, the Secretary of the State Board of Health shall forthwith transmit a certificate of the facts so found to the district attorney of the county in which said adulterated, mislabeled or misbranded food was found. No publication, as in this act provided, shall be made until after said hearing is concluded.

EDUCATIONAL WORK.

One of the salient features of the pure food movement is the educational side. It is not the object of the State Board of Health, or those connected with the enforcement of the pure food law, to pounce down upon an ignorant infringer of the law and haul him up for disgrace and punishment. On the contrary, the State Board has assumed the attitude of instructor, and it has been very encouraging to find how anxious and willing the great majority have been to understand and comply with the law. In order to reach those in out of the way places, who had not applied to the Laboratory for information, the State Board of Health instituted a special system of work along this line during the summer of 1909. Part of the State was divided into sections and especially qualified inspector sent to each district. He visited each town in his district, and every store and factory in the town. He took no samples whatever. He looked over all goods with the proprietor, told him which were not labeled properly, warned him against questionable methods, advised him about getting guaranties with his goods, etc. It is a matter of congratulation to say that out of the thousands of establishments visited, as indicated by the tabular statement following, the cases of rudeness, or lack of appreciation, were so few that they are not worth remembering. The inspectors were welcomed politely and dismissed with gratitude.

SUMMARY OF WORK OF TEMPORARY INSPECTORS, 1909.

Temporary inspectors.	Number of towns visited.	Stores inspected.					Total.
		Groceries.	Butchers	Confectionery.	Drugs	Miscellaneous	
Johnson, F. E.	27	110	40	60	14	29	253
Rosenstein, L.	44	163	57	60	62	9	351
Hoagland, D. R.	25	134	53	59	13	16	275
Roberts, J. B.	24	72	24	25	16	22	159
Totals	120	479	174	204	105	76	1,038

The manufacturers and dealers, however, are not the only class that require education. A great deal of persistent effort is needed in order to make the average consumer both intelligent and conscientious on this subject.

We all have heard the complaints from the grocer that the housekeeper now returns to him his pure maple syrup with the remark, "It is not nice, the family do not like it." She wants the kind of maple syrup she has always used—he offers her the choice of "cane and maple syrup" or "cane and corn syrup maple flavored." Oh, no! She will not have those; she never used "*Corn* syrup," she used "*Maple,*" but it was nicer than that which he gave her the other day; she thinks she will try another grocer, and so it goes.

The law of supply and demand is a fixed one—we can not hope to move it. We must, therefore, in trying to regulate the supply, work also to create and maintain the proper kind of demand.

It would appear, therefore, that still more time and effort should be used for educational purposes than has already been done, because successful enforcement, satisfactory enforcement, is far more a matter of education than of law. In this connection it may be interesting to state that the Director of the Laboratory has spent some time during the two years covered by this report lecturing before different associations and meetings, with special reference to the educational policy of the State Board of Health. Lectures, at times illustrated by lantern slides, have been delivered in Sacramento, Anderson, University Farm, Davis (several times), Napa, Petaluma, Berkeley, Oakland, San Francisco, San Jose, Capitola, Seabright, Santa Cruz, Hollister, San Diego and other places, and also by Mr. E. J. Lea, acting for the Director, at Goleta, Nordhoff, Ventura, Fillmore, and Carpinteria. This form of instruction proved to be of considerable interest and value to the localities visited, as evidenced by the animated discussions following each lecture. As a still further endeavor in this direction, it may be mentioned that on the agricultural demonstration train and on the

State Board of Health's sanitation car have been placed exhibits of foods, both adulterated and pure. The difference between them could be detected only by a chemical analysis, as the appearance, and quite often the taste, failed to detect the pure from the adulterated. The object of this was to show the necessity of maintaining a chemical laboratory for the purpose of ensuring to the consumer pure articles of food. It is believed that such an exhibit is of very great value. This is confirmed by the great interest taken in the display by the large number of visitors which passed through these trains. It is of more than passing interest to note that upwards of 73,000 visited the agricultural demonstration train during the fall of 1909 and the spring of 1910, and over 100,000 people visited the sanitation car.

The Director of the State Laboratory was appointed as delegate from the State Board of Health to attend the convention of the Official Agricultural Chemists and Food Control Officials in Washington, November, 1908, and at the convention in Denver, 1909.

The conventions, as a whole, were glad that California was represented at the meetings, and it is to be hoped that there always will be such a representation at these important gatherings, as the conference with others as to methods of analysis and of enforcing the pure food law can not be otherwise than of the utmost benefit to those interested. There is another feature in this connection which must not be overlooked, and that is, the opportunity given the representative to visit other important laboratories in the East and confer with the analyst as to apparatus and other details which it is impossible to discuss by correspondence. For scientists located on the Pacific coast it is of the utmost importance, and one might say almost a necessity, to make periodical visits to the scientific centers in the East in order to keep up with the march of progress in such work. Correspondence and literature are of inestimable value, but they can not take the place of a personal visit to the scientific laboratories.

LABORATORY WORK.

The following tabular statements indicate the nature and kind of chemical and microscopical work which has been done during the two years—from August 1, 1908, to August 1, 1910. As in previous cases, it is considered best to indicate the number of samples of each kind of food tested by separate tables, rather than to present the report in one large table. In addition it should be stated that considerable time is required for correspondence and personal interviews:

BEERS.

Material.	Number containing preservatives.	Number not containing preservatives.	Total.
August 1, 1908, to August 1, 1909—			
Beers		12	12
August 1, 1909, to August 1, 1910—			
Beers			

The 12 samples of beer here reported were examined for the purpose of ascertaining the absence of nonpermissible preservatives; as will be seen by the table, no preservatives were found.

BEVERAGES.

Material.	Number adulterated.	Number mislabeled.	Number adulterated and mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—					
Cider			8	6	14
Ginger ale	2	2		4	8
Grape juice				4	4
Soda waters, etc.	2	16		25	43
Totals	4	18	8	39	69
August 1, 1909, to August 1, 1910—					
Cider			1	4	5
Ginger ale	1	1		5	7
Soda waters, etc.		4		4	8
Totals	1	5	1	13	20

The findings with reference to the beverages as a whole are interesting, in that they indicate a great improvement in the condition of these drinks as compared with showing previously made.* It was there found that but 28 per cent of the samples tested complied with the law, 72 per cent being adulterated and mislabeled.

The tabulated data here presented shows that 58 per cent are not in violation of the pure food act, leaving but 42 per cent which failed to comply with the law. Of these about 26 per cent were mainly mislabeled, in that benzoate of soda and saccharin were used in the preparation of the products, while no mention of such fact was made on the label. In some cases allowable coal-tar colors were employed, but the label failed to indicate any such use.

The samples of soda water, etc., examined include a large variety of such drinks as cococola, iron brew, peach mello, sarsaparilla and iron, queen charlotte, etc.

In only one sample, that of ginger ale, was salicylic acid detected.

BREADS.

Material.	Number adulterated.	Number misbranded or mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—				
Breads			2	2
August 1, 1909, to August 1, 1910—				
Breads				

No systematic examination of breads was undertaken. Two samples were examined, as indicated in the above table. A sample of brown bread was submitted to the Laboratory with the statement that it contained added color. The examination, however, for artificial color showed negative results. The sample of gluten bread was stated to be low in nitrogen. A chemical examination proved that the nitrogen content was up to the standard required by law.

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* California State Board of Health, 1908, p. 212.

BUTTER.

Material.	Number adulterated.	Number misbranded or mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909— Butter	1	4	2	7
August 1, 1909, to August 1, 1910— Butter		15	3	18

Twenty-five samples of butter were submitted to the Laboratory for examination and analysis. Fourteen of the samples submitted were found to be in violation of the law, in that the package did not weigh as much as the label indicated; in other words, it was short-weight butter. Two samples were found to be adulterated, in that the water content was practically twice the maximum allowed by the Federal Government and the State laws. The maximum amount of water allowed in butter is 16 per cent. The percentage found in these samples in question varied from 32 to 36. Four of the samples submitted were found to be misbranded, in that the labels were misleading and deceiving as regards the place of manufacture. Five samples were found to be not in violation of the pure foods act.

It is to be regretted that more time could not be devoted to a full investigation of the matter of short-weight butter. There are several creameries in the State that furnish to the consumer, full weight, that is, 2-pound squares. Such manufacturers have to suffer in competition with those who furnish packages containing less than the two pounds of butter.

CEREALS.

Material.	Number adulterated.	Number mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909— Cereals				
August 1, 1909, to August 1, 1910— Cereals	5		14	19

Of the 19 samples here reported, 5 were found to be adulterated, in that foreign starch was present. The examination of the cereals and by-products is extremely important, not only with reference to their use as human foods, but also in connection with their use as poultry foods. It is well known that oats, either in the shape of granulated oats or coarse oatmeal, is one of the best foods for growing poultry that is to be found in the open market. This is due to some extent to the richness of oats in protein. No other grain contains as much. Therefore, an adulteration by the substitution of other grains for the oats is not only a pecuniary fraud, but results also in the poultry being deprived of a certain amount of nutriment so necessary for their rapid growth and development. It is, perhaps, of more than passing interest to note that the microscope is of the utmost aid in detecting such adulterations, and such an examination is generally sufficient to base final conclusions regarding the purity, or otherwise, of different cereal products.

CHEESE.

Material.	Number adulterated.	Number mislabeled.	Number adulterated and mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—Cheese	1			1	2
August 1, 1909, to August 1, 1910—Cheese					

Two samples of cheese were officially submitted to the Laboratory for the purpose of ascertaining whether or not they contained any nonpermissible preservative. The chemical analysis shows that one sample was adulterated, in that it contained borax, while the other was not in violation of the pure foods act.

CHOCOLATE AND COCOA.

Material.	Number adulterated.	Number mislabeled	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—Chocolate and cocoa			3	3
August 1, 1909, to August 1, 1910—Chocolate and cocoa				

It is to be regretted that time did not permit of an extended examination of chocolates and cocoas. It is to be hoped during the coming year that more data can be collected with reference to these foods. The amount of nutriment that is obtained from an infusion of tea and coffee is practically nil, whereas, in the case of chocolate and cocoa it is entirely different. The analyses of these food materials show us that they furnish considerable nutriment, and therefore it is quite important that an examination be made for the purpose of insuring to the consumer a pure and wholesome article. Three samples examined, as indicated above, were not found to be in violation of the law.

COFFEE.

Material.	Number adulterated.	Number mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909 Coffee			13	13
August 1, 1909, to August 1, 1910—Coffee			6	6

The systematic and comprehensive examination of coffees is very necessary on account of the opportunity for misbranding and mislabeling. The adulteration of the coffee with cereals and with chicory is more or less easily detected with the aid of the microscope. It may be said that there is very little, if any, misbranding or mislabeling in this direction. The adulteration of the coffee with cereals and with chicory, is more or being unobjectionable, and in accordance with the law governing such cases. The main form of adulteration, however, as practiced at present is the mislabeling and misbranding as to locality where the coffee is grown. The 19 samples that were examined in the Laboratory were found to be neither adulterated, misbranded, nor mislabeled.

COFFEE SUBSTITUTE.

Material.	Number adulterated.	Number mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—				
Coffee substitute		5	5	10
August 1, 1909, to August 1, 1910—				
Coffee substitute				

Ten samples of coffee substitutes were collected by inspectors and examined at the Laboratory. Five of the samples were found to be mislabeled, in that the labels lead the purchaser to believe that a considerable amount of coffee was present in the mixture. This was found not to be the case.

COLORS.

Material.	Number adulterated.	Number mislabeled,	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—				
Colors	13	7	22	42
August 1, 1909, to August 1, 1910—				
Colors				

Forty-two samples of coloring matters intended for coloring different foods, were examined with the result that 22 of the samples were found not to be in violation of the pure foods act. Seven samples were mislabeled, in that the color was not that indicated by the label on the package. Thirteen samples were found to be adulterated, because they were coal-tar dyes, not permissible in food products. The State law allows the use in foods or food products of seven coal-tar colors, provided that the presence of such colors is plainly stated on the label when such colors are used to imitate the natural color of any food product.

CONFECTIONERY.

Material.	Number adulterated.	Number mislabeled.	Number adulterated and mislabeled.	Number not in violation of California pure foods act.	Total
August 1, 1908, to August 1, 1909—					
Confectionery	7	23		61	91
August 1, 1909, to August 1, 1910—					
Confectionery		3		10	13

The findings of the previous report* showed that 27 per cent of the samples examined contained paraffin. Of the 104 examined and here reported, less than 7 per cent were found to be so adulterated, and at the present writing it is believed that there is practically no such sophistication practiced. Twenty-three samples were mislabeled, in that they were colored so as to deceive and mislead the purchaser into the belief that fruit colors were used, whereas such was not the case.

With reference to the use of artificial colors in candy, the following may be said: Only harmless coloring matter is allowed in any case, regardless of the label used. Only certain specified coal-tar colors are allowed, the list of which has repeatedly been published. No coloring matter can be used for the purpose of concealing inferiority, in any event. If the coloring matter indicates the presence of a flavor or an ingredient which is not present, or if it indicates the presence of an ingredient in greater quantity than is really contained, the presence of artificial coloring matter must be declared on the label. It must likewise be declared if the coloring matter gives the article the appearance of an article of a different or higher grade or standard. Otherwise, the label will be deemed to be deceptive, and prosecutions will be ordered. If, however, the flavor indicated by the label is that actually used, or if the ingredient indicated by the color is actually present, and to the degree indicated, the addition of harmless, allowable coloring matter need not be declared on the label.

CRACKERS.

Material.	Nnmber adulterated.	Number mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—Crackers				
August 1, 1909, to August 1, 1910—Crackers			1	1

As indicated by the above table, but one sample of crackers was examined, and this was found not to be in violation of the law. The sample was submitted with the request that analysis be made for the purpose of ascertaining whether or not any preservative had been used. No preservatives were found.

CREAM.

Material.	Number adulterated.	Number mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—Cream				
August 1, 1909, to August 1, 1910—Cream	2		3	5

This is really a low standard. Cream for table use should always contain more than 18 per cent. Many restaurants, however, serve their patrons with cream very low in fat, and sometimes milk is served in place of cream, although the menu card indicates that cream should be served. Several cases of such violations of the pure food law were brought to the attention of the Laboratory. Five samples were collected by inspectors, with the result that 2 samples purporting to be cream were found to be far below the standard in fat, and in reality should have been labeled milk and not cream. The prosecution of these two cases, it is of interest to note, had a very wholesome effect on the restaurant-keepers.

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* California State Board of Health, 1908, p. 215.

CONDIMENT—CATSUP.

Material.	Number adulterated.	Number mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—				
Catsup	----------	5	5	10
August 1, 1909, to August 1, 1910—				
Catsup	----------	23	8	31

A comparison of the results above tabulated for catsups, with those previously reported,* would seem to indicate that mislabeling and misbranding of this condiment is not decreasing. In the report referred to only 25 per cent of the samples examined were mislabeled or misbranded, while from the present showing, upwards of 70 per cent of the samples tested were thus in violation of the California pure foods law.

Commenting on these results, it may be said that a number of samples were collected from restaurants where bottles originally filled with a catsup containing no preservative had been refilled with another brand in which this preservative was used. In these cases there were therefore two violations of the law; one in failing to state the presence of benzoate of soda in the catsup, and the other in refilling the bottles. The law in this connection reading, "that a food shall be deemed mislabeled if the contents of the package as originally put up shall have been removed in whole or in part and other contents shall be placed in such package."

Benzoic acid, or its compounds, as is well known, in accordance with Food Inspection Decision 104, is allowed in foods or food products, provided the presence and amount is plainly stated on the label. Only one third of the samples submitted were found not to be in violation of the pure foods act.

CONDIMENTS—MISCELLANEOUS.

Material.	Number adulterated.	Number mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—				
Condiments, miscellaneous	1	9	11	21
August 1, 1909, to August 1, 1910—				
Condiments, miscellaneous	----------	4	5	9

Of the above 30 samples 11 were found to have complied with the law. Only one sample was declared adulterated by reason of it containing salicylic acid. The mislabeling occurring in 13 samples was due mainly to the fact that the manufacturer had used benzoate of soda and failed to make such a declaration on the label. In only one case was the presence of coal-tar color the cause of the violation.

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* California State Board of Health, 1908, p. 214

CONDIMENT—PREPARED MUSTARD.

Material.	Number adulterated.	Number mislabeled.	Number adulterated and mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909— Prepared mustard		32	1	5	38
August 1, 1909, to August 1, 1910— Prepared mustard		29		13	42

This set of results stands out prominently in the large proportion of samples examined found to be in violation of the law. The infringement in 52 cases was due to a desire to improve the color of the mustard. without declaring the use of the coloring matter so employed on the label. One sample was grossly adulterated, in that cereals had been largely used to replace the mustard.

CONDIMENT—SALAD DRESSING.

Material.	Number adulterated	Number mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909— Salad dressing		2	4	6
August 1, 1909, to August 1, 1910— Salad dressing		2		2

No extended study was made of salad dressing. Of the 8 samples submitted, 4 were found to be mislabeled. Benzoate of soda was detected in two, and coal-tar colors in two others. The failure to declare the use of these materials constituted violations of the California pure foods act.

CONDIMENT—SAUCE, MISCELLANEOUS.

Material	Number adulterated.	Number mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909— Sauce, miscellaneous		2	11	13
August 1, 1909, to August 1, 1910— Sauce, miscellaneous		2	4	6

Nineteen samples of miscellaneous sauces were received at the Laboratory; of these, 4 were discovered to contain benzoate of soda without any indication on the label of the presence of this preservative. Fifteen samples were passed as complying with the law.

CONDIMENT—PICKLES.

Material.	Number adulterated.	Number mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—				
Pickles, sweet	1	6	3	10
Pickles, sour		4	1	5
Totals	1	10	4	15
August 1, 1909, to August 1, 1910—				
Pickles, sweet		6	3	9
Pickles, sour		1	4	5
Totals		7	7	14

Here again in connection with this condiment benzoate of soda is found to be the chief cause of the infringement of the law. Of the 29 samples analyzed, 15 were condemned on account of the undeclared presence of this chemical used as a preservative. In one sample saccharin was the cause of the violation, and in still another it was due to the use of the nonpermissible preservative salicylic acid.

CONDIMENT—SAUCE, WORCESTERSHIRE.

Material.	Number adulterated.	Number mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—				
Sauce, Worcestershire	1		10	11
August 1, 1909, to August 1, 1910—				
Sauce, Worcestershire		1	3	4

Only a small proportion of the samples of Worcestershire sauce were proven, on analysis, to be in violation of the law. Salicylic was detected in one case, and incorrect labeling as to place of manufacture was noted in another. Thirteen samples were shown to comply with the California pure foods act.

EGGS.

Material.	Number adulterated.	Number Mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—				
Eggs		1	2	3
August 1, 1909, to August 1, 1910—				
Eggs		30	3	33

The above table shows the result of work on samples taken previous to August 1, 1910. Thirty-one out of 36 were mislabeled, in that the wording would lead the purchaser to consider them fresh eggs, while many of them were four to eight weeks old.

During the session of the legislature of 1908-1900 an amendment to section 6 of the California pure foods act was passed reading:

> *Sixth.*—If, having no label, it is an imitation or adulteration, or is sold or offered for sale under a name, designation, description or representation which is false or misleading in any particular whatever; and in case of eggs and poultry; if they have been kept or packed in cold storage, or otherwise preserved, they must be so indicated by written or printed label or placard plainly designating such fact when offered or exposed for sale.

The object of this amendment, as far as poultry and eggs are concerned, being to prevent cold storage articles of this kind being sold as fresh, the taking of samples did not begin until the season for cold storage eggs to appear on the market, which is fall.

The first hearings brought out such a difference of opinions and interpretations among the dealers that a suspension of prosecution was agreed upon until a ruling should be made by the Board of Health.

As a preliminary measure to such a ruling an extended investigation was entered into at the State Laboratory with the view of developing the best methods of determining the age, condition, etc., of the eggs.

The ruling of the Board of Health on this part of amendment sixth will be found in full in the Monthly Bulletin of the State Board of Health for March, 1910, copies of which can be obtained upon application to the Secretary of the State Board of Health.

The taking of samples of eggs in any large numbers was thus delayed until the fall of 1910, too late for the results to be shown in this issue, but the report of work of 1910-11 will contain a large and interesting set of results.

EGG PRODUCTS.

Material.	Number adulteratad.	Number mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—				
Egg paste				
Egg compound				
August 1, 1909, to August 1, 1910—				
Egg paste			1	1
Egg compound		1		1
Totals		1	1	2

But two samples of egg pastes and compounds were sent to the State Laboratory for analysis. One was mislabeled in that the nutritive value was far below that indicated by the statements which appeared on the label.

EXTRACTS—FLAVORING.

Material.	Number adulterated.	Number mislabeled.	Number adulterated and mislabeled.	Number not in violation of California pure foods act	Total.
August 1, 1908, to August 1, 1910—					
Lemon		2	37	11	50
Vanilla			18	26	44
Vanilla substitutes		11		8	19
Raspberry		6		3	9
Strawberry	1	5		2	8
Miscellaneous		4		9	13
Totals	1	28	55	59	143
August 1, 1909, to August 1, 1910—					
Lemon		7	30	37	74
Vanilla		6	3	17	26
Raspberry		2	2	1	5
Strawberry		1		1	2
Peppermint		1	4		5
Miscellaneous		5	1	7	13
Totals		22	40	63	125

A decided improvement is manifest in the condition of the flavoring extracts over the findings previously reported.* It was there shown that only 25 per cent of the samples tested complied with the law. During the period of August 1, 1908, to August 1, 1909, the corresponding figure is 41 per cent and the analyses recorded for the following year indicate, as seen from above data, that 50 per cent of the samples were passed.

The violations with reference to lemon extract were mainly due to the low content of oil as compared with that required by the standard. In many cases this was the result of ignorance of the fact that dilute alcohol will not dissolve 5 per cent of lemon oil. Some manufacturers dissolve a sufficient quantity of oil in strong alcohol, which, if made up to a gallon, without reducing the strength of the alcohol below 80 per cent, would fully meet the requirements of the standards. Too much water, however, is added, and this brings about a turbidity which is gotten rid of by adding some substance, such as magnesium carbonate and filtering. The result being a clear liquid, but one containing little of the original oil, most of which is to be found in the residue from filtering.

A few samples were misbranded, in that artificial color was detected, while no mention of this fact was made on the label. The infringement here in some cases was due to the bottles failing to contain the quantity of extract stated on the label. It will be noticed that about 61 per cent of the samples of vanilla extract were not in violation of the law. The failure to comply in most cases consisted in the sale of extracts deficient in vanilla resins and also containing coumarin. The mislabeling of the vanilla substitutes constituted a violation of the law in that the purchaser was misled and deceived into the belief that the extract was pure vanilla.

In the case of peppermint extract, 4 samples were found to be below standard in oil of peppermint, and one to contain a nonpermissible coal-tar color. The findings of the analyses of the other samples of extract above tabulated indicates that the main reason for not complying with the law was due to the use of coal-tar color and failure to declare such fact on the label.

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* California State Board of Health Report, 1908.

FISH.

Material.	Number adulterated.	Number mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—				
Fish	2		8	10
August 1, 1909, to August 1, 1910—				
Fish	5		17	22

It will be seen by the above label that only a small number of samples of fish were received at the laboratory. One specimen of canned fish proved to be putrid, and the entire consignment, of which the samples examined was representative, was condemned as unfit for human food. Seven of the samples of dried fish contained borax.

FLOURS.

Material.	Number adulterated.	Number mislabeled.	Number adulterated and mislabeled	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—					
Flour, miscellaneous				5	5
Flour, gluten		7		2	9
Flour				6	6
Totals		7		13	20
August 1, 1909, to August 1, 1910—					
Flour, miscellaneous		1		6	7
Flour, gluten		2			2
Totals		3		6	9

The standard for gluten flour requires that it shall contain 5.6 per cent nitrogen. Of the 11 samples submitted to the State Laboratory, only two met the requirements of the standard, the others all being low in nitrogen, which represents the albuminoids or proteids.

Of the 19 other samples of flour analyzed only one was found to be in violation of the California pure foods act. The package was labeled wheat flour. The presence, however, of foreign starch was detected.

FRUIT.

Material.	Number adulterated.	Number mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—				
Fruit		3	8	11
August 1, 1909, to August 1, 1910—				
Fruit		3	5	8

As indicated in the above table, but nineteen official samples were submitted by the inspectors. These included preserved cherries, olives, canned pears and peaches. Three samples of olives were in violation of the law in that the label bore false statements as to place of production. One lot of canned peaches was discovered to be short weight. A statement of the weight or measure of the food contained in a package is not required, but if any such statement is printed, it shall be a plain and correct statement of the average net weight or volume.

GELATINE COMPOUNDS.

Material.	Number adulterated.	Number mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—Gelatine		7	6	13
August 1, 1909, to August 1, 1910—Gelatine		1	2	3

Sixteen official samples of gelatine compounds employed in the preparation of puddings, desserts, etc., were submitted. Of these just one half proved on examination and analysis to be in violation of the law. The infringement being chiefly due to the use of permissible artificial colors in imitation of the natural fruit color without any such declaration appearing on the label. The purchaser is consequently led to believe that the color is due to that of the fruit indicated by the wording on the label.

HONEY.

Material.	Number adulterated.	Number mislabeled.	Number adulterated and mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—Honey		4		7	11
August 1, 1909, to August 1, 1910—Honey			8	10	18

The above table is interesting in showing the tendency still existing to adulterate honey with glucose. The amount of this ingredient found varied from 30 to nearly 60 per cent, while no mention was made on the label of such addition to the honey. There is no objection to the sale of a mixture of honey and glucose or glucose and honey provided the label is properly worded. If more than 50 per cent of glucose is contained in mixture the label should read "Glucose and Honey." If in the other brand the amount of honey exceeds that of glucose then the label "Honey and Glucose" would be unobjectionable. This is in accordance with Food Inspection Decision No. 75.

ICE CREAM.

Material.	Number adulterated.	Number mislabeled.	Number adulterated and mislabeled	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909— Ice cream			8	10	18
August 1, 1909, to August 1, 1910— Ice cream			5	8	13

Of the thirty-one samples of ice cream tested at the Laboratory, thirteen were in violation of the California pure foods act. The product in twelve cases was found to contain too little fat. The standard calls for 14 per cent fat. Some of the samples showed less than 8 per cent of this ingredient. The results of the examinations also indicate the presence of gelatin without the declaration on the label of the use of this material. From a hygienic standpoint there is no objection whatever to the addition of a small amount of gelatin to ice cream; but when such additions are made, the fact must be stated on the label in order to conform to the provisions of the law. Similarly with respect to the addition of allowable coloring matter to ice cream.

JELLIES, JAMS, ETC.

Material.	Number adulterated	Number mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909— Jelly, jams, etc.		27	22	49
August 1, 1909, to August 1, 1910— Jelly			1	1

It is to be regretted that the above table does not present the results of any extended investigation of jellies, jams, etc. Only a few samples were tested, but as these were typical and included the general forms of mislabeling the findings are perhaps of more importance than would be indicated by the mere number of samples submitted. The main cause of infringements was mislabeling due to the fact that the product as sold or offered for sale was a mixture of two or more jams or jellies while the label did not indicate any such mixture. The purchaser was led to believe that the article sold consisted of one kind of jelly or jam only. The law fully countenances the sale of mixtures of jellies and jams provided the label be plainly worded in this connection.

Artificial coloring is also allowed, by use of permissible colors, provided the label plainly indicates such use.

LARD.

Material.	Number adulterated.	Number mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909— Lard			2	3
August 1, 1909, to August 1, 1910— Lard			3	2

Two samples of lard were submitted by the inspectors to the laboratory, due to the statement made that the lard was suspected of containing beef tallow. A careful chemical and microscopical examination of the samples, however, showed that the lards in question were pure. The lard as largely used on the Pacific coast comes from establishments which are under Federal inspection. This inspection is so rigid and the outputs of the different establishments so well watched, and samples analyzed by the chemical laboratory of the bureau of animal industry, that the state laboratory does not deem it necessary to investigate such products, the consumer being amply protected by the Federal inspection.

LIQUORS.

Material.	Number adulterated.	Number mislabeled.	Number adulterated and mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—					
Liquors				8	8
August 1, 1909, to August 1, 1910—					
Liquors			4	6	10

The examination of whiskey and distilled liquors was not undertaken on account of an investigation being carried on by the United States government in this connection. Until the ruling was received as a result of such investigations the State Laboratory had no basis upon which to work.

Food Inspection Decision 113, under date February 16, 1910, defines whiskey as follows:

> Under the food and drugs act of June 30, 1906, all unmixed distilled spirits from grain, colored and flavored with harmless color and flavor, in the customary ways, either by the charred barrel process, or by the addition of caramel and harmless flavor, if of potable strength and not less than 80 degrees proof, are entitled to the name of whiskey without qualification. If the proof be less than 80 degrees, *i. e.*, if more water be added, the actual proof must be stated upon the label and this requirement applies as well to blends and compounds of whiskey.

In accordance with the above, it was found that of the eighteen samples received in the laboratory, four were mislabelled, in that the quantity of alcohol was below 80 degrees proof, such deficiency not be declared on the label.

MEATS—MEAT FOOD PRODUCTS.

Material.	Number adulterated	Number mislabeled	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—				
Meats, canned	6		61	67
Meats, hamburger steak	31		25	56
Meats, bologna sausage	3	3	2	8
Meats, frankfurter sausage	6	4	4	14
Meats, sausage	12	3	23	38
Meats, sausage, salami	3		8	11
Totals	61	10	123	194
August 1, 1909, to August 1, 1910—				
Meats, canned	2	1	6	9
Meats, hamburg steak	22		26	48
Meats, bologna sausage	3		4	7
Meats, pork sausage	5			5
Meats, chicken, cold storage		5	1	6
Beef extract			1	1
Totals	32	6	38	76

During the period covered by this report, 76 samples of canned meats were examined. Of this number 67 passed and 9 were found to be in violation of the law, in consequence of their containing preservative agents.

Of the 104 samples of chopped meat or hamburger steak examined, 51 passed and 53 were found to contain preservatives.

The infringement of the law, in the case of bologna sausage were of two kinds. Three of the 15 samples examined contained the allowable addition of a cereal, but which addition was not found declared on the label. Two contained a preservative and four a coal-tar color, which had penetrated to the substance of the sausage, while the law only permits its use when restricted to the membrane covering the meat.

Not one of the samples of pork sausage taken were passed. Three were found to be adulterated with beef and two contained a non-permissible preservative.

Fourteen samples of franfurters were taken and only four passed. Four contained a cereal not declared on the label; two contained a preservative and coal-tar color; three contained preservative and one a non-permissible coal-tar color.

Salami sausage made a better showing, as only three out of eleven samples were in violation on account of a contained preservative not allowed. Of the 38 samples of other sausage examined, 23 passed and 15 were found to be in violation of the law. Twelve out of the 15 contained a preservative and three were mislabeled on account of containing an undeclared cereal.

Only one sample of beef extract was examined, and that one was passed.

PRESERVATIVES—MEAT.

Material.	Number adulterated	Number mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909— Preservatives, meat		1	4	5
August 1, 1909, to August 1, 1910— Preservatives, meat				

In accordance with the provisions of the California pure foods act, the only preservatives allowed in meat or meat food products are common salt, sugar, wood smoke, vinegar, pure spices and saltpeter. Benzoate of soda is allowed in accordance with Food Inspection Decision No. 104, provided the presence and amount used are stated on the label.

Five samples of preservative mixtures for use in meats and meat food products were examined with the result that four were passed and one found to contain sulphites.

MILK.

Material.	Number adulterated.	Number mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—				
Milk				
Milk, buttermilk			2	2
Milk, certified		1		1
Milk, condensed			31	31
Milk, malted				
Totals		1	33	34
August 1, 1909, to August 1, 1910—				
Milk	16		21	37
Milk, buttermilk				
Milk, certified				
Milk, condensed			4	4
Milk, malted		2		2
Totals	16	2	25	43

The examination of milk as above indicated, included analyses of ordinary milk, buttermilk, condensed milk, malted milk and certified milk.

The testing of samples of ordinary milk was undertaken on account of complaints having been received in the laboratory from patrons of restaurants, who claimed that the milk served was poor. Of the 37 samples collected, 16 proved to be below State standard (3 per cent) in fat. No preservatives were found. In view of the fact that in nearly all cases the local Board of Health supervised this line of work, very little is carried on by the State Laboratory.

With reference to certified milk it is a matter for congratulation that at the last session of the legislature (1908-09) an act was passed regulating the production and sale of certified milk, reading in part:

> SECTION 1. No person shall sell or exchange, or offer or expose for sale or exchange, as and for certified milk any milk which does not conform to the regulations prescribed by, and bear the certification of a milk commission appointed by a county medical society organized under and chartered by the medical society of the State of California and which has not been pronounced by such authority to be free from antiseptic, added preservatives and pathogenic bacteria, or bacteria in excessive numbers. All milk sold as certified milk shall be conspicuously marked with the name of the commission certifying it.

Only one instance of mislabelling in this connection was discovered. In the case of malted milk the violations were due to mislabeling as to place of production.

With reference to condensed or evaporated milk it may be said that the State standard is as follows: "Condensed milk or evaporated milk in a whole milk from which a considerable of water has been evaporated and contains not less than twenty-four and five-tenths (24.5) per cent of milk solids, including not less than seven and seven-tenths (7.7) per cent milk fat." This is slightly lower as regards the total solids than the Federal standard, which calls for twenty-eight (28) per cent. Thirty-five samples of evaporated milk examined by the State Laboratory were found to meet the requirements of the new standard as above stated.

OILS—EDIBLE.

Material.	Number adulterated.	Number mislabeled.	Number adulterated and mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—					
Oils, edible			5	9	14
August 1, 1909, to August 1, 1910—					
Oils, edible			1	2	3

There were seventeen samples of oils examined. Eleven of these were passed and six were found to be mixed with cotton seed oil, not declared upon the label.

This form of violation is in the nature of a fraudulent rather than a deleterious one. Cotton seed oil is a good food material, but being much cheaper than olive oil, and not having the same reputation for either nutritive or medicinal value, its undeclared presence is a case of extreme fraud practiced upon the purchaser.

PASTES.

Material.	Number adulterated.	Number mislabeled.	Number adulterated and mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—					
Macaroni		3		3	6
Noodles, etc.		3		11	14
Pastry				5	5
Totals		6		19	25
August 1, 1909, to August 1, 1910—					
Macaroni				1	1
Noodles			1	2	3
Totals			1	3	4

Of the seven samples of macaroni examined four were passed and three were found to be mislabeled. In some instances the boxes were labeled twenty-five pounds while in actual fact they contained less than twenty pounds.

Only four of the 17 samples of noodles were found to be in violation of the law. Of these, one was short weight, one was labelled "egg noodles" while upon analysis, no egg was found, and two contained coal tar color, not declared upon the label. The use of this dye was to stimulate an egg color, and cause a misapprehension, with out so labelling the package.

All of the five samples of cornucopias examined were passed.

RICE.

Material.	Number adulterated	Number mislabeled.	Number adulterated and mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—					
Rice					
August 1, 1909, to August 1, 1910—					
Rice			6	12	18

In accordance with Food Inspection Decision 67, it is held by the Department of Agriculture that rice treated either by polishing with talc or glucose, or by any other means, or by coating with calcium carbonate or any other material, should be labeled in all cases with the name of the extraneous substance, as "Coated With Glucose and Starch." In such declarations all of the food substances used for coating should be mentioned. Any coloring matter or other substances that may be employed to change the tint of the rice should be declared on the label.

The question of the wholesomeness of paraffin, talc, or other non-food substances used is to be construed in such a way as to protect the health of those most susceptible to their influences. Rice is a diet often prescribed for those suffering from impaired digestion. The use of parraffin in such cases is at least of questionable propriety, and in the opinion of the department it should be excluded from food products.

SALT.

Material.	Number adulterated.	Number mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—				
Salt, table			6	6
August 1, 1909, to August 1, 1910—				
Salt, table			1	1

The object in making the examination of these seven samples was to ascertain whether or not there were any truth in the rumor that this condiment was made a carrier for non-permissible preservatives, for the use of meat men and others. No justification for the opinion was here found, as all seven samples were passed as being pure.

SEED—BIRD.

Material.	Number adulterated	Number mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—				
Seed, bird				
August 1, 1909, to August 1, 1910—				
Seed, bird			1	1

The term "food," as used in the California pure food act, includes all articles used as food, drink, etc., by man or other animals. In accordance therewith, upon a complaint to an inspector, a sample of birdseed was collected and submitted to the laboratory, with the request that test be made for poisonous seeds. Microscopic examinations failed to detect any such.

SPICES.

Material.	Number adulterated.	Number mislabeled.	Number adulterated and mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—					
Allspice			3	5	8
Cayenne pepper			1	14	15
Cinnamon			1	4	5
Cloves			4	4	8
Currie powder			1		1
Ginger			3	2	5
Mace			4	3	7
Marjoram			2		2
Mustard			4	6	10
Nutmeg			2	4	6
Pepper, black			8	20	28
Pepper, white			3	7	10
Sage				2	2
Thyme			1		1
Totals			37	71	108
August 1, 1909, to August 1, 1910—					
Allspice			7	3	10
Cayenne pepper				10	10
Cinnamon				3	3
Cloves			3	9	12
Currie powder				1	1
Ginger				3	3
Mustard		1	4	6	11
Nutmegs				3	3
Pepper, black				11	11
Pepper, white			1	4	5
Miscellaneous			2	6	8
Totals		1	17	59	77

An inspection of the above table shows that the infringements were due to adulteration and were in much larger proportion in some spices than in others. While 24 out of 25 samples of cayenne pepper were passed, only 42 out of 54 samples of the white and black peppers were found to conform to the law. Again, while the proportions of samples adulterated is high in the cases of allspice, clove, ginger and mace, it is very low with cinnamon and nutmeg. The adulterations are due in most cases to the use of cereals, olive pits, cornmeal, etc., and are fraudulent rather than injurious.

SUGARS—MAPLE AND CANE.

Material.	Number adulterated.	Number mislabeled.	Number adulterated and mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—					
Sugars				8	8
August 1, 1909, to August 1, 1910—					
Sugars			5	5	10

The above record includes the analyses of 13 samples of maple sugar, 4 samples miscellaneous, and one of cane sugar. Five of the samples of maple sugar were found to be mixed with cane sugar, thus constituting a violation of the law. The five samples of other sugar complied with the pure food act.

SYRUPS.

Material.	Number adulterated.	Number mislabeled.	Number adulterated and mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—					
Syrups, table		7	12	22	41
Syrups, flavoring	1	28		31	60
Totals	1	35	12	53	101
August 1, 1909, to August 1, 1910—					
Syrups, table			7	8	15
Syrups, flavoring		15		17	32
Totals		15	7	25	47

As indicated by the above data the maple syrups are too often mixed with cane syrup without any declaration of such mixture appearing on the label. The other table syrups show a large percentage of infringement in the matter of mislabelling as to contents of package.

With reference to flavoring syrups it may be said that the chief cause of violations of the law was due to the use of artificial permissible colors and flavors without any mention being made on the label. The purchaser being led to believe that the color and flavor were due to the fruit indicated. Six samples were found to contain benzoate of soda without any such declaration on label. Saccharine was detected in two samples. This is used as an artificial sweetener.

TEA.

Material.	Number adulterated.	Number mislabeled.	Number not in violation of California pure foods act	Total.
August 1, 1908, to August 1, 1909—				
Tea				
August 1, 1909, to August 1, 1910—				
Tea			22	22

Twenty-two samples of tea were received for examination, the statement being made that the teas were colored and mixed with foreign materials. The examination, as above indicated, failed to reveal any infringement of the law.

VEGETABLES.

Material.	Number adulterated.	Number mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—				
Vegetables		1		1
August 1, 1909, to August 1, 1910—				
Vegetables			2	2

Of the three samples of canned vegetables examined one was found to be short in weight.

VINEGARS.

Material.	Number adulterated.	Number mislabeled.	Number adulterated and mislabeled.	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—					
Vinegar, cider			9	7	16
Vinegar, miscellaneous				3	3
Vinegar, wine				1	1
Totals			9	11	20
August 1, 1909, to August 1, 1910—					
Vinegar, cider			44	132	176
Vinegar, malt			3	1	4
Vinegar, distilled, etc.			3	11	14
Vinegar, sugar				2	2
Vinegar, wine			5	2	7
Totals			55	148	203

Since the publication of the last report an amendment was passed which made the artificial coloring of vinegars an infringement of the law. In spite of this being a new decree, however, a very small percentage of samples were found to contain artificial coloring matter; only five infringements being due to this cause, while 59 were due to being below the standard which calls for four (4) per cent of acetic acid as a minimum. The total showing is a good one, as the table shows 159 samples passed as against 64 total infringements.

WATER.

Material.	Number adulterated.	Number mislabeled	Number not in violation of California pure foods act.	Total.
August 1, 1908, to August 1, 1909—				
Water, mineral		49	2	51
August 1, 1909, to August 1, 1910—				
Water, mineral		1	7	8

The findings of the above table are the result of the examination of mineral waters in relation to sections 4 and 5 of the California pure foods act, defining adulteration and misbranding. Out of 59 samples taken, 50 were found to be in violation of the law in that either a plain carbonated water was substituted for a mineral water, or else a mineral water of a different kind was substituted for the one asked for by the purchaser.

DRUGS.

Material.	Number adulterated.	Number mislabeled.	Number adulterated and mislabeled.	Number not in violation of California pure drugs act.	Total.
August 1, 1908, to August 1, 1909—					
Medicinal herbs, etc.	38			78	116
Miscellaneous drugs		14		13	27
Totals	38	14		91	143
August 1, 1909, to August 1, 1910—					
Paregoric		9		3	12
Witch hazel		1		2	3
Hydrogen peroxide				3	3
Corn remedies		2		2	4
Hydrochloric acid				3	3
Alcohol				4	4
Headache powders		5		6	11
Cold cures, cough syrups		5		1	6
Tinctures, miscellaneous		10	4	9	23
Fluid extracts, etc.		3		5	8
Lime water	2				2
Bay rum		1		2	3
Camphor, spirits of		4		1	5
Miscellaneous		5		8	13
Totals	2	45	4	49	100

As indicated by the above data, two hundred and forty-three samples of drugs were examined at the laboratory during the period covered by the report. A large percentage of medicinal herbs in powdered form were adulterated by the admixture of foreign materials. In general, the mislabeling or misbranding of drugs was mainly found among patent medicines, paregoric, cough syrups, etc. The labels of these did not declare the presence of alcohol, opium, acetanilide and other narcotic drugs as by required by the Food Inspection Decision No. 112, being practically a revision of regulation 27 of the California pure food and drugs act. Several drug samples were mislabeled, in that their labels bore false and extravagant statements which were misleading and deceiving to the purchaser, thus constituting a violation of the pure food and drugs law.

SUMMARY OF ANALYTICAL WORK.

The following tables, summarize the analytical work done at the State Laboratory for the two years ending August 1, 1910:

Table showing Summary of Analytical Work, August 1, 1908, to August 1, 1909.

Material.	Number adulterated.	Number mislabeled.	Number adulterated and mislabeled.	Number not in violation of California pure foods act.	Total.
Beer				12	12
Bread				2	2
Butter	1	4		2	7
Beverage	4	18	8	39	69
Cheese	1			1	2
Chocolate and cocoa				3	3
Confectionery	7	23		61	91
Condiments—miscellaneous	1	9		11	21
Mustard, prepared		32	1	5	38
Pickles, sweet	1	6		3	10
Pickles, sour		4		1	5
Salad dressing		2		4	6
Sauce		2		11	13
Sauce, Worcestershire	1			10	11
Catsup		5		5	10
Eggs		1		2	3
Extracts, flavoring	1	28	55	59	143
Coffee				13	13
Coffee substitute		5		5	10
Colors	13	7		22	42
Fish	2			8	10
Flour				6	6
Gluten		7		2	9
Miscellaneous				5	5
Fruit		3		8	11
Gelatine		7		6	13
Honey		4		7	11
Ice cream			8	10	18
Jelly, jam, etc.		27		22	49
Lard				2	2
Liquors				8	8
Meats—canned	6			61	67
Hamburger steak	31			25	56
Bologna sausage	3	3		2	8
Frankfurter sausage	6	4		4	14
Sausage	12	3		23	38
Sausage, Salami	3			8	11
Preservatives		1		4	5
Milk—buttermilk				2	2
Certified		1			1
Condensed				31	31
Oils, edible			5	9	14
Pastes, etc.—macaroni		3		3	6
Noodles, etc.		3		11	14
Pastry				5	5
Syrups					
Table		7	12	22	41
Flavoring	1	28		31	60
Salt, table				6	6
Sugars				8	8
Spices			37	71	108
Vinegar			9	11	20
Vegetables		1			1
Waters, mineral		49		2	51
Drugs	38	14		91	143
Totals	132	311	135	785	1,363
Per cent	9.7	22.8	9.9	57.6	100

Table showing Summary of Analytical Work, August 1, 1909, to August 1, 1910.

Material.	Number Adulterated.	Number mislabeled.	Number adulterated and mislabeled.	Number not in violation of California pure foods act.	Total.
Butter		15		3	18
Beverages	1	5	1	13	20
Cereals	5			14	19
Confectionery		3		10	13
Cream	2			3	5
Coffee				6	6
Condiments—miscellaneous		4		5	9
Mustard, prepared		29		13	42
Pickles, sweet		6		3	9
Pickles, sour		1		4	5
Salad dressing		2			2
Sauce, miscellaneous		2		4	6
Sauce, Worcestershire		1		3	4
Catsup		23		8	31
Crackers				1	1
Eggs		30		3	33
Egg paste				1	1
Egg compound		1			1
Extracts, flavoring		22	40	63	125
Fish	5			17	22
Flour, miscellaneous		1		6	7
Flour, gluten		2			2
Fruit		3		5	8
Gelatine		1		2	3
Honey			8	10	18
Ice cream			5	8	13
Jelly				1	1
Lard				3	3
Liquors			4	6	10
Meats—canned	2	1		6	9
Hamburg steak	22			26	48
Chicken, cold storage		5		1	6
Bologna sausage	3			4	7
Pork sausage	5				5
Beef extract				1	1
Milk	16			21	37
Evaporated				4	4
Malted		2			2
Oils, edible			1	2	3
Olives		2			2
Pastes, etc.—macaroni				1	1
Noodles			1	2	3
Rice			6	12	18
Syrups, table			7	8	15
Flavoring		15		17	32
Salt				1	1
Seed, bird				1	1
Spices		1	17	59	77
Sugars			5	5	10
Tea				22	22
Vegetables				2	2
Vinegars			55	148	203
Waters, mineral		1		7	8
Drugs	2	45	4	49	100
Totals	63	223	154	614	1,054
Per cent	5.9	21.1	14.6	58.2	100

The most interesting part of the summaries lies in their comparison with each other and also with the summary of the work done during the first year of the existence of the State Laboratory.

The following small table shows this comparison very clearly:

Year.	Per cent adulteration.	Per cent mislabeled.	Per cent adulterated and mislabeled.	Per cent complying with the law.	Total.
To August, 1908	20.9	9.0	13.0	57.1	100
To August, 1909	9.7	22.8	9.9	57.6	100
To August, 1910	5.9	21.1	14.6	58.2	100

An inspection of the figures gives rise to an immediate question as to the possible reason or reasons for the percentage of adulterations, decreasing so quickly while the percentage of mislabeling increases. The explanation can in all probability be found in the following facts.

The greatest work accomplished by this department is undoubtedly the work of education, and it is always easier to teach some things than it is others.

An adulteration is never allowed under any circumstances and it is comparatively easy to impress the average mind with this fact. But the question of mislabeling is a complicated one, and many misapprehensions still exist among those who are not only willing but anxious to obey the law.

While it is now generally understood that the names of certain definite substances must appear on the label, there are still many other instances in which some manufacturers and dealers think that a substance that is *allowed* need not be mentioned. This is especially true of such things as benzoate of soda, permissible artificial colors and flavors, and the addition of cereal to meat food products, etc. It is also noticeable, that while the percentage of adulterations has decreased, the percentage of samples passed remains about the same. This speaks well for the alertness and intelligence of the inspectors, in spending no unnecessary effort in "worked out leads," but in continually changing the direction of their energies and prospecting new ground.

CONCLUSION AND RECOMMENDATIONS.

While the foregoing report indicates a more satisfactory showing than was presented at the last biennial report (1906-08), there remains much still to be accomplished in the State, in the matter of inspection, examination, and analysis of foods and drugs. This is evidenced by the fact that nearly one half of the foods and drugs examined are in violation of the law.

With the limited funds heretofore at the command of the laboratory, it has not been possible to thoroughly inspect the entire State, and it is to be regretted that there are some sections where there has been practically no inspection. At present there are only three inspectors regularly engaged in the work. This number should be increased to at least seven.

The personnel of the laboratory should be at least doubled. There should be at least four expert chemists in addition to the director, connected with the State Food and Drug Laboratory.

The above increase in the working force and other expenses, as indicated below, would necessitate an annual appropriation of $25,000, or $50,000 for the two fiscal years, 1911-13. This amount would be apportioned approximately as follows:

Five food inspectors, salary	$6,000 00
Three drug inspectors, salary	4,000 00
Expenses of inspectors for traveling, purchasing samples, etc.	5,500 00
Four laboratory assistants (analytical chemists)	4,800 00
One stenographer, one clerk	1,440 00
Chemical apparatus and supplies	2,000 00
Laboratory help, janitor work, etc.	600 00
Stationery, stamps, expressage, telephone service, etc.	660 00
	$25,000 00

It is confidently expected that with the facilities that would be afforded by the increased appropriation, that such thorough work could be carried on both as regards inspection and examination of foods and drugs, and educational work with the retailers that a smaller appropriation might suffice for this division of the board's work in the future.

It is to be hoped, however, that the State Laboratory may in the near future, also undertake research problems in animal nutrition, and not have to confine its labors entirely to police work.

Respectfully submitted.

M. E. Jaffa,
Director.

REPORT OF HYGIENIC LABORATORY.

W. A. SAWYER, M.D., Director.

The State Hygienic Laboratory in the biennial period ending June 30. 1910, has shown a decided increase in its efficiency in assisting the State Board of Health, the city and county health officers, and the local physicians to discover and suppress disease. The State Board of Health and the health officers receive through the laboratory early information of the discovery in new places of important infectious diseases as well as their prevalence and rate of spread. In many places the time of release from quarantine for diphtheria depends upon evidence from the laboratory that the throat no longer harbors the germs. The assistance given physicians in making definite diagnoses of their obscure cases of contagious disease hastens the application of appropriate treatment and consequently, by shortening the course of illness, lessens the chances of spread of the contagion to others.

The laboratory examines without charge, for the physicians of the state, cultures for diphtheria, sputum for tuberculosis, blood-smears for malaria, animals' brains for rabies (hydrophobia), feces for amœbic dysentery and hookworm, and dried blood for typhoid. When the Secretary of the State Board of Health finds that the examination of a sample from a given water supply would have a bearing on public health, the laboratory examines the water for evidence of pollution. In addition to the routine examinations mentioned, special investigations are undertaken as questions arise.

GROWTH OF THE LABORATORY.

During the past two years many more physicians and a decidedly larger number of communities have availed themselves of the services of the laboratory than during the preceding biennial period. The number of physicans who sent material to the laboratory for examination was 319, while the corresponding figures for the preceding two years were 267. Specimens were received from 121 towns, while in the previous biennial period 80 towns were served. These figures show that 40 per cent more communities availed themselves of the investigations of the State Hygienic Laboratory between July 1, 1908, and June 30, 1910, than from July 1, 1906, to June 30, 1908. It is expected that the development of branch laboratories and of an extensive system of depositories in drug stores for the distribution of mailing outfits will render the services of the laboratory easily and promptly available to every part of the State. Undoubtedly the next two years will find many more communities rendering their efforts to control disease more efficient through the use of the laboratory. The following table shows the rapid increase in the routine work from the establishment of the laboratory on July 1, 1905. to the present·

Table showing Increase in Number of Examinations July 1, 1905, to June 30, 1910.

	Rotine bitheria examinations.	Diphtheria examinations in special investigation......	Malaria..........	Plague	Rabies	Tuberculosis...	Typhoid	Water pollution	Miscellaneous..	Total without special investigations.. ...	Total examinatians..........
First year of the laboratory, July 1, 1905, to June 30, 1906	330	----------	----	1	----	54	32	67	96	580	[1]580
Biennial period, July 1, 1906, to June 30, 1908..	1,231	[2]5,009	----	[3]13	----	255	185	57	504	2,245	7,254
Biennial period, July 1, 1908, to June 30, 1910..	2,793	[4]6,325	58	----	37	497	330	95	145	3,955	10,280
Totals................	4,354	11,334	58	14	37	806	547	219	745	6,780	18,114

[1] One year only.

[2] Examinations in Lincoln school in Berkeley; school in Oroville; Hayward grammar school; school in Colfax.

[3] 1,844 rats from Berkeley were examined for plague at the laboratory during this period. The expense was borne by the town of Berkeley.

[4] Investigation of epidemic in the Southern California State Hospital at Patton.

If the few large groups of diphtheria examinations which were made in connection with special investigations are taken into consideration, the increase in the number of examinations of the last biennial period over those of the preceding one is from 7,254 to 10,280, a change of 42 per cent. Omitting from consideration the special diphtheria examinations, we find the change to be from 2,245 to 3,955, an increase of 76 per cent. This startling rate of growth of the regular work shows no sign of abating and indicates the necessity for an increase in staff and equipment.

DETAILED STATISTICS FOR JULY 1, 1908, TO JUNE 30, 1910.

The first of the following tables gives the number of regular examinations made during each month of the last biennial period. The second table gives the number of examinations and their results for each month of the second year of the same period:

Number of Examinations by Months and Diseases, July 1, 1908, to June 30, 1910.

	Diphtheria.	Malaria.	Rabies.	Tuberculosis.	Typhoid.	Water pollution.	Miscellaneous.	Total.
July, 1908[1]	48	----	----	13	17	----	4	82
August, 1908	56	2	----	13	18	----	3	92
September, 1908	506	6	----	17	12	----	3	544
October, 1908	120	4	----	16	7	----	7	154
November, 1908	211	6	----	18	7	2	14	258
December, 1908	179	----	----	23	10	4	4	220
January, 1909	94	----	----	23	11	1	9	138
February, 1909	89	----	----	22	7	5	11	134
March, 1909	64	1	----	13	5	5	4	92
April, 1909	411	3	----	27	3	3	6	453
May, 1909	175	3	----	37	12	1	6	234
June, 1909	48	5	----	17	9	6	6	91
July, 1909	25	----	----	20	15	8	3	71
August, 1909	30	3	----	24	38	21	6	122
September, 1909	39	6	----	13	13	17	6	94
October, 1909	30	3	----	15	14	----	11	73
November, 1909	51	4	12	20	18	----	13	118
December, 1909	38	1	4	12	14	----	6	75
January, 1910	151	5	3	29	12	5	3	208
February, 1910	84	2	6	20	13	----	7	132
March, 1910	58	1	5	29	14	1	2	110
April, 1910	61	1	1	17	12	----	3	95
May, 19:0	155	----	4	28	19	7	4	217
June, 1910	70	2	2	31	30	9	4	148
Total	[2]2,793	58	37	497	330	95	145	[2]3,955

[1] Statistics for July, 1908, are incomplete.

[2] Not including 6,325 diphtheria examinations made at Patton in July and August, 1908. The total of all examinations is 10,280.

Number of Examinations and Results for Five Diseases by Months, July 1, 1909, to June 30, 1910.

	Diphtheria.			Malaria.			Rabies.			Tuberculosis.			Typhoid.		
	Positive.	Negative.	Total.	Positive.	Negative.	Total.	Positive.	Negative	Total.	Positive.	Negative.	Total.	Positive.	Negative.	Total.
July, 1909	4	21	25	----	----	----	----	----	----	4	16	20	5	10	15
August, 1909	3	27	30	----	3	3	----	----	----	3	21	24	9	29	38
September, 1909	3	36	39	----	6	6	----	----	----	1	12	13	1	12	13
October, 1909	2	28	30	----	3	3	----	----	----	3	12	15	5	9	14
November, 1909	5	46	51	1	3	4	10	2	12	6	14	20	5	13	18
December, 1909	7	31	38	----	1	1	4	----	4	3	9	12	6	8	14
January, 1910	23	128	151	2	3	5	1	2	3	8	21	29	5	7	12
February, 1910	5	79	84	----	2	2	2	4	6	10	10	20	2	11	13
March, 1910	6	52	58	----	1	1	1	4	5	10	19	29	4	10	14
April, 1910	5	56	61	----	1	1	1	----	1	5	12	17	1	11	12
May, 19 0	59	96	155	----	----	----	2	2	4	2	26	28	7	12	19
June, 1910	41	29	70	----	2	2	2	----	2	12	19	31	14	16	30
Totals	163	629	792	3	25	28	23	14	37	67	191	258	64	148	212

DIPHTHERIA.

The most generally appreciated function of the laboratory is the examination of throat or nose cultures for diphtheria bacilli. Bacteriological methods of diagnosis are recognized to be the only reliable means of obtaining conclusive evidence of the presence or absence of diphtheria. Cultural methods reduce to a minimum the number of cases which do not receive early the benefit of antitoxin owing to mistakes in diagnosis. The examination of cultures gives great assistance to the local health authorities in fulfilling their duties of establishing quarantine and deciding the time of release from isolation. The detection of "carriers," who distribute the germs although not ill themselves, can only be brought about through systematic culture-taking.

The handling of diphtheria epidemics by the closing of schools is in some communities giving way to the more rational method of discovering the small number of "carriers" through the systematic taking of throat and nose cultures, and enforcing isolation of those found to be dangerous. This method not only stops the transmission of infection at school without interrupting education, but also prevents the spread of the disease in the playground and on the street. For handling an epidemic in this way, painstaking work is necessary by the local investigators as well as by the laboratory bacteriologists.

During the two years 1908 to 1910, 2,793 examinations were made of cultures sent by physicians from various parts of the State. In addition, 6,325 cultures were made in July and August of 1908 by Miss Margaret Henderson of this laboratory in repeated examinations of the 1,200 inmates of the Southern California State Hospital at Patton. During this investigation 30 per cent of the people in the hospital were found at one time or another to harbor diphtheria bacilli. Systematic isolation of the individuals found by bacteriological examination to be dangerous was followed by suppression of diphtheria in the hospital. Miss Henderson's report of this investigation may be found in full in the twentieth biennial report of the California State Board of Health, pages 200 to 203.

Diphtheria should be better controlled in California, and the next step toward bringing this about should be directed toward the shortening of the delay in sending cultures to the laboratory. Up to the present time it has been impossible for the laboratory to give the physicians at a distance the prompt assistance which the welfare of their patients and the protection of their communities demand. Many physicians feel obliged to be content with clinical diagnosis of diphtheria on account of the length of time necessary for procuring culture tubes and containers in which bacteriological specimens can be legally mailed, and for sending specimens to the central laboratory. It is clearly the duty of the State to bring to a minimum in all parts of the State the time necessary for learning of the presence and distribution of diphtheria. If the necessary support is given, the laboratory will be able to bring this about. The time necessary for obtaining mailing outfits can be rendered unimportant by establishing in drug stores in all the larger towns systematically stocked depositories where physicians can obtain on application the free mailing outfits of the laboratory. The time necessary for transmitting cultures to the bacteriologist could be markedly shortened by maintaining branch laboratories in Los Angeles, Fresno, and some town in Northern California. The resident bacteriologists of the branches would be able to coöperate in the arduous task of eradicating epidemics of diphtheria by systematic culture taking from schools and other institutions. If the measures here proposed are made possible, the prevalence of diphtheria should show a decided decrease owing to the greater dependence on cultural diagnosis and to the rapidity of the receipt and application of information from the nearest state bacteriologist.

MALARIA.

The prevalence of malaria in three large areas of California has made this disease the cause of great economic loss as well as a destroyer of human health and life. The fact that this disease is one of the few which are very amenable to medicine makes it very important to the individual sufferer that his disease be recognized. That all cases of malaria should be discovered and cured by prolonged treatment with quinine is important to the uninfected members of the community since infection can only be received through the bite of a mosquito which has previously bitten a human being who has the parasites in his blood. It is evident that either the total destruction of the mosquitoes capable of carrying malaria or the complete cure of all the human cases in a given region would be sufficient to remove the disease. Therefore, an energetic campaign against mosquitoes carried on through draining or oiling the pools in which they breed should be supplemented by the curing of the chronic and acute cases which furnish the mosquitoes with the infection which they transmit. The laboratory offers its assistance in making the diagnosis of malaria through the examination of blood-smears sent by physicians. The discovery of the malarial organisms in the red corpuscles of the blood proves the diagnosis of malaria and justifies the treatment of the individual during the several months usually necessary for the permanent eradication of the disease.

Although malaria frequently offers great obstacles in diagnosis, being sometimes distinguished with difficulty from typhoid and other fevers, the physicians of the State as yet have sent few specimens of blood to the laboratory for examination for the presence of malarial parasites. During the past two years only 58 examinations of this kind have been made.

RABIES (HYDROPHOBIA).

The appearance and spread of rabies, or hydrophobia, in California has confronted the State Board of Health with a new and serious problem. This disease has for many years been specially prevalent in the eastern part of the United States and has occurred to a less extent in the central portions. Rabies was carried westward by infected dogs and probably to a certain extent by wild animals to Arizona, and finally the disease reached the Pacific Slope. Now rabies is prevalent in Southern California and has been proved to exist in the central part of the State.

A careful study of the history of "Rabies in Southern California" by Dr. Stanley P. Black and Dr. L. M. Powers, which appeared in the California State Journal of Medicine for November, 1910 (vol. VIII, p. 369), furnishes the following facts indicating that rabies existed in California as far back as 1898. In that year five or six dogs in Los

Angeles and a few near the city showed the symptoms of the disease, and in one case the diagnosis was confirmed by animal experimentation. A muzzling ordinance was enforced and no more rabid animals were seen in the city. In the spring of 1899 a fatal human case in Pasadena followed the bite of a spaniel. The diagnosis in this case was confirmed by animal inoculation. From 1899 to 1906 no cases were observed by Dr. Black or Dr. Powers. In 1906 at the Soldiers' Home, twelve miles from Los Angeles, a dog bit a man, five horses, several dogs and hogs. An examination of the dog's brain in Chicago resulted in the finding of the characteristic microscopic lesions of hydrophobia. The man who had been bitten took the Pasteur treatment. Of the animals which had been bitten, the dogs were killed and two of the horses and one hog developed rabies. In June and July of 1906 several dogs were killed in Los Angeles on account of being suspected of rabies, and in September a horse died of the disease. A microscopical examination of the brain of the horse proved the diagnosis. The disease spread rapidly during the following months. In November, 1909, an extensive outbreak of rabies appeared among the dogs of Pasadena and was checked by a muzzling ordinance.

The preceding historical statements of Dr. Black and Dr. Powers indicate the reasons for the investigation undertaken in the State Hygienic Laboratory in November, 1909. At the instance of Dr. Charles Keane, State Veterinarian, the Bureau of Animal Industry of the United States Department of Agriculture was asked to assist the state health officials in an investigation of the identity of the cases which were being reported. The bureau complied by assigning to duty at the State Hygienic Laboratory Dr. George H. Hart, an authority upon rabies. In conjunction with the laboratory staff he examined a number of dogs' heads which were sent to the laboratory, and found that several of them gave conclusive evidence of rabies.

The frequent appearance since November, 1909, of new cases in regions known to be infected and the appearance of the disease in new districts show that the present measures taken against rabies are inadequate. Positive results have been obtained up to November 11, 1910, in the examination of animals' heads received at the laboratory from Pasadena, Los Angeles, Stockton, Redlands, Highland, Riverside, Imperial, San Bernardino, Alhambra, Corona, and Concord.

The spread of the disease is due more to opposition to the enforced muzzling of dogs and the disposal of ownerless animals than to inactivity on the part of the health authorities. In many parts of the State health officers are doing their utmost to bring about control of the disease, but they are hindered by the opposition of dog owners who do not appreciate the fact that their animals are the chief sufferers from the disease as well as the only important factor in its perpetuation and transmission to horses, cattle, swine, cats, and people.

An additional obstacle is the reiterated assertion that the disease does not exist in California. These statements are still heard in spite of the known loss of dogs, horses, and cattle, and the death of two human beings from hydrophobia in Los Angeles in February and May, 1910. Conclusive evidence can be given by the State Hygienic Laboratory to show that the disease has been prevalent in certain parts of the State since early in November, 1909. Since then few months have passed without the discovery in the laboratory of evidence of the existence of rabies in California.

Through the kindness of Dr. L. M. Powers, Health Officer of Los Angeles, and of Dr. Stanley P. Black of the same city, the results of examinations for rabies in the City Laboratory in Los Angeles and in the Pathological Laboratory of Dr. Black, have been obtained, making it possible to gather together the results of the three laboratories which perform most of the examinations for rabies.

The State Hygienic Laboratory at Berkeley, from November 2, 1909, to November 11, 1910, examined the brains of 56 animals. Of these examinations 29 gave unmistakable evidence of rabies. Of the heads giving positive findings one was from a cat and one from a cow. The others were from dogs.

The Los Angeles City Laboratory previous to October 28, 1910, examined the brains of 87 animals, and found positive evidence of rabies in 54 of these. The examinations included the heads of horses, cattle, cats, and dogs. Many cases of rabies had been reported to the health office without laboratory diagnosis, bringing the total number of cases recorded up to 138. This larger number included 5 horses, 1 mule, and 1 person.

In the Pathological Laboratory of Dr. Stanley P. Black in Los Angeles, between January 1, 1910, and November 8, 1910, the brains of 43 animals were examined for rabies with positive results in 39. Of the brains giving evidence of the disease 5 were from cats and the remainder from dogs.

In the three laboratories mentioned the total number of examinations of brains for rabies was 186. Conclusive evidence of the existence of rabies was found in 122 of these cases.

Dogs' heads sent to the State Hygienic Laboratory for examination should be packed in ice just before being started by express. Heads sent in this way arrive in good condition, while the other methods of transmission have proved very unsatisfactory. Dogs suspected of being rabid, if they can be safely captured, should not be killed, but should be confined and cared for. If they remain well for ten days, rabies is not present. If they die, the Negri bodies have had time to develop in the cells of the brain, and the laboratory diagnosis becomes simplified and conclusive.

A letter should be sent at the time of the shipment stating the reasons for suspecting rabies, the region in which the suspected animal was found, the number of persons or animals known to have been bitten. and any other obtainable facts of interest. If it is desired that results should be telegraphed, collect, as soon as the examination is completed. this should be stated. A telegraphic report should always be requested when human beings have been bitten, so that the beginning of the Pasteur treatment for the prevention of hydrophobia shall not be delayed.

Within the biennial period ending July 1, 1910, 37 examinations were made of animals' brains for rabies. Of these examinations 23 were positive and 14 negative.

THE NEED OF A PASTEUR INSTITUTE.

The increasing prevalence of rabies in California has resulted in the biting of many human beings. The result has been three human deaths from this horrible disease and the administration of the Pasteur treatment to many others. The establishment of a Pasteur institute as a department of the State Hygienic Laboratory is indicated by the following considerations:

1. If it should become necesasry to establish in California a Pasteur institute for the treatment of persons bitten by rabid animals, it seems wiser that such an institution should be a part of the State Hygienic Laboratory than that it should be organized by private individuals on a commercial basis. It seems best that the diagnosis should be made and the treatments should be given by the same institution and that this institution should be under state control.

2. If a Pasteur institute is not established in California, the treatment of persons bitten by rabid dogs must depend on the United States Public Health and Marine-Hospital Service for the shipment of virus, or the patient must be sent to a Pasteur institute as far away as the institute at Chicago, St. Louis, Austin (Texas), Minneapolis (University of Minnesota), Madison (University of Wisconsin), or Ann Arbor (University of Michigan).

3. In case the virus is procured from Washington by telegraphing to the Surgeon General of the United States Public Health and Marine-Hospital Service, who sends the virus by mail and special delivery, a delay of at least six days is necessitated. The boy recently treated in Berkeley was bitten in the afternoon of October 25th, the dog's head was received at the State Hygienic Laboratory on October 26th, the results were reported and the virus telegraphed for on October 27th. It was 10 a. m., November 3d, when the arrival of the virus permitted the starting of the treatment. Fortunately, the wound was small and on an extremity. Otherwise this delay might have been serious.

4. If the diagnosis depended on the death of the diseased animal two or three days after the biting, or on inoculations made from the brain of a dog which had been killed at the time of the biting before the characteristic Negri bodies had developed in the brain sufficiently to be detected, the week's delay of sending to Washington for virus or the shorter loss of time due to sending the patient to an institution in the middle west might render the treatment futile.

5. During the eleven months preceding November 5, 1910, the Hygienic Laboratory of the United States Public Health and Marine Hospital Service in Washington, D. C., furnished the California State Board of Health with the material for 92 courses of Pasteur treatment. This means an average of 8.4 cases per month. At this rate there would be 100 cases in a year. Undoubtedly a private institution will soon be started in California if the State does not enter the field first. Information has been received that such an institution is now being planned.

6. The present situation seems to warrant the establishment of a Pasteur institute on the Pacific coast. The location of the State Hygienic Laboratory at Berkeley is sufficiently central for it to do the work for California, and, if necessary, for neighboring states.

7. The presence of the laboratory at the State University will give the director of the Hygienic Laboratory the opportunity of freely con-

sulting in regard to the scientific problems of a Pasteur institute with the scientists at the University of California. The newly appointed professor of pathology, Dr. Frederick P. Gay, recently instructor in Harvard University, has made a specialty of research in immunity, and therefore he is familiar with the scientific basis of the Pasteur treatment.

8. Dr. C. B. McGlumphy, the assistant in the State Hygienic Laboratory, was called here from the Pasteur institute at the University of Michigan, where he carried on the routine production of the virus and the treatment of the patients. He is prepared to do the same work at the State Laboratory.

9. The necessary increase in the expenses of the State Hygienic Laboratory would not be great, and could be in part defrayed by the fees of patients. In Michigan residents of the state are charged $25, while patients from the outside pay $100. These fees approximate the expenses of the institute. The work of the laboratory is increasing and soon will need the services of another assistant if Dr. McGlumphy has the additional duties of the institute. In the building which contains the State Hygienic Laboratory the additional space necessary for the Pasteur institute has already been provisionally granted by Dr. Gay.

The following letter from Dr. Frederick P. Gay, professor of pathology in the University of California, has a very direct bearing on the subject of starting a Pasteur institute:

UNIVERSITY OF CALIFORNIA, DEPARTMENT OF PATHOLOGY.
BERKELEY, November 1, 1910.

Dr. W. A. Sawyer, State Hygienic Laboratory.

DEAR DR. SAWYER: It gives me great pleasure to comply with your request for my opinion in reference to the advisability of establishing a local Pasteur institute for the treatment of rabies. As you doubtless know, we in this country, have been extremely negligent in taking active measures for the suppression of this serious malady, which is now epidemic in many parts of the United States, whereas in Europe, every country, and nearly every city of considerable size has its Institute for the preventive treatment of individuals who have been bitten by rabid dogs, where every adequate means for preventing the spread of the disease is taken.

Muzzling laws are, of course, imperative and if rigorously enforced will eventually suppress the disease. But experience has shown in Europe that it is almost impossible to enforce them thoroughly. For many years the few cases in this country were treated at private institutions at a cost of a hundred dollars or more to the patient, in addition to the expense of a considerable journey to the locality in which such an institution was situated. Some years ago the New York Health Board established a Pasteur laboratory and many cases were treated directly or indirectly by this board. A short time ago the Marine-Hospital Service in Washington also established a laboratory, which fact impresses on the thoughtful mind the prevalence of the disease and the importance of active measures to suppress it.

The Public Health and Marine Hospital in Washington is, I understand, willing to supply virus and to send it to any part of the country when the request is made through a board of health, and in most parts of the country this method of treatment is the only one which is feasible at the present time short of an expensive and time-consuming journey to Washington.

The Government, however, has never intended, I am told unofficially by Dr. Rosenau, late director of the Marine Hospital Laboratory, to supply the entire country for an indefinite period and certainly not for any considerable period in view of the marked increase in the disease. The governmental idea has been simply to standardize the method of treatment and impress the country with the importance of the disease. It seems therefore imperative from the point of supply that state laboratories should provide themselves with their own weapons for combating rabies. Ir is certain that at any moment it may be impossible for the Government to meet the demands from various parts of the country.

A second question of still greater importance lies in the material itself as it is now supplied by the Washington Laboratory. In the first place a necessary delay of from four to five days at least must be counted on before the virus can be obtained from Washington. As you well know the success of the Pasteur inoculation for rabies depends directly on the treatment beginning as soon as possible after the bite of a rabid animal. At the Pasteur Institute in Paris cases are not accepted for treatment after 21 days, and the sooner the case is treated the more certain is the cure, so that a delay of five days in waiting for the means of treatment is a serious one. Let us suppose, for example, that through some negligence, or other reason. the patitent did not present himself to you for treatment until two weeks after having been bitten. If you are obliged to wait another five days for the means of treatment, the possibility of saving that individual's life would be extremely problematical.

Virus, which is sent through the mails, although supposedly protected from contamination by glycerine is by no means so advisable for use in the treatment of cases, as virus which has been prepared on the spot by the individual who administers the treatment. It is particularly advantageous for the one who treats cases to have material which he has prepared himself, and concerning the virulence of which he has himself made the determinations.

It seems then to me highly desirable, not to say essential, that each state board of health and particularly one so remote from the source of supply as to the State Board of Health of California, should provide itself with the nucleus of a Pasteur institute for the treatment of sporadic cases of rabies which may occur within the State, and in order to forestall any sudden epidemic for which it might be impossible to secure any virus at all.

Very truly yours,

(Signed) FREDERICK P. GAY.

TUBERCULOSIS.

The definite diagnosis of tuberculosis is the first step necessary for the persuasion of an infected individual to take precautions against spreading the disease. In making examinations of sputum for the bacilli of tuberculosis the laboratory takes an important part in the general movement against a most destructive and widespread disease. Besides warning the patient to treat his disease in time, a positive sputum examination demonstrates to him the necessity of destroying the material which he expels from his mouth. A conscientious and well-informed consumptive is of little danger to those around him. The unrecognized case is a menace.

Specimens of sputum may be sent by mail in the special containers furnished by the laboratory.

Between July 1, 1908, and June 30, 1910, misroscopic search for the germs of tuberculosis was made in 497 specimens of sputum, an increase of 95 per cent over the number of examinations of the preceding two years.

TYPHOID FEVER.

In many communities of California typhoid fever is still prevalent. To discover the sources of the disease in a given epidemic it is necessary to begin by differentiating between typhiod and other fevers which imitate it. The presence of this disease can usually be discovered in the laboratory by the effect of a typhoid patient's blood on living typhoid germs. A drop of blood dried on the aluminum foil of the mailing outfit is sufficient material for the test. Similar examinations are made for the closely related diseases, the paratyphoid fevers. In some cases the Widal test was supplemented by a search for typhoid germs in cultures inoculated with a patient's blood.

The examination of blood for typhoid helps discover the wandering case of mild typhoid fever and the recovered "carrier." If such cases are discovered and kept from occupations involving the handling of food, they lose much of their danger.

The examination of water for pollution is of assistance in finding the source of infection.

During the two years ending June 30, 1910, the laboratory made Widal tests for typhoid of 330 specimens of blood. This part of the work shows an increase of 78 per cent in two years.

WATER EXAMINATIONS.

Although a sanitary survey of the region furnishing a water supply gives the most important information regarding the presence or possibility of pollution, a laboratory analysis of a sample of the water often gives valuable confirmatory or supplementary evidence. Pollution can frequently be detected by the bacteriological examination of water in the Hygienic Laboratory. The detection of bacilli coli in considerable number shows that the water is receiving pollution from human beings or animals. If the pollution is from human beings the danger of the transmission sooner or later of typhoid and other water-borne diseases is great.

The laboratory undertakes to make bacteriological examinations of water only upon instructions from the Secretary of the State Board of Health. When a water supply is suspected of being dangerous to public health, the local health authorities should be given an opportunity to investigate the source of the water. If they feel that the sanitary survey needs to be supplemented by laboratory examination, a request for a bacteriological examination should be sent to the Secretary of the State Board of Health in Sacramento. Whenever he finds that an analysis is justified, the laboratory will send an ice box, sterile bottles and directions for the taking of samples. Whenever possible a representative who can make a sanitary survey is sent out to take samples, but at present the laboratory staff rarely can spare a man for this purpose.

Between July 1, 1908, and June 30, 1910, examinations of 95 water samples were made at the laboratory. This number is 67 per cent larger than for the previous two years.

DISEASES OF ANIMALS.

From time to time examinations have been made for anthrax or glanders and have been classed in the reports as miscellaneous. Occasionally portions of tissue from cases of veterinary diseases have been received and have been referred to those members of the University staff who teach veterinary medicine. Some special provision ought to be made for the laboratory investigation of animal diseases. If this is not elsewhere provided for, the State Hygienic Laboratory should have attached to its staff a second bacteriologist who has had training in veterinary pathology.

INTESTINAL PARASITES.

Examinations of feces for amœbic dysentary or hookworm disease are carried on at the laboratory whenever specimens are sent for this purpose. Sometimes physicians find rare parasities or their eggs in the excreta of their patients. The laboratory will undertake to determine the nature of such parasites. The Director has often been indebted to the scientists in the various departments of the University of California for aid in such investigations.

GONOCOCCUS INFECTIONS.

It has been suggested that the State Laboratory should take part in the present campaign against gonorrhœa and syphilis by making laboratory examinations of smears of pus for the organisms of gonorrhœa and by making Wasserman tests of blood for syphilis. The first mentioned examinations could easily be added to the routine work. To have the Wasserman test performed in the laboratory by a trained assistant is a feasible plan and will be brought about if desired by the State Board of Health.

SPECIAL INVESTIGATIONS.

During the past two years (July 1, 1908, to June 30, 1910) a number of special investigations have been carried out by the laboratory staff. A partial list of these follows:

1. An investigation of a diphtheria epidemic at the Southern California State Hospital at Patton. Reported in the twentieth biennial report of the State Board of Health of California, pages 200 to 203.
2. An investigation of food supposedly the cause of the wholesale poisoning at the launching of the "Prometheus" at Vallejo. Reported in the Monthly Bulletin of the California State Board of Health for December, 1908, volume 4, pages 73–74.
3. An investigation of the value as a disinfectant of "Diozo." Reported in the Monthly Bulletin of the California State Board of Health for January, 1909, volume 4, pages 87–88.
4. An investigation of the antiseptic properties of "The Antiseptic Telephone Transmitter." Reported in the Monthly Bulletin of the California State Board of Health for February, 1909, volume 4, pages 98–102.
5. An investigation of the disinfectant power of the "C. C. C. Disinfecting Insecticide." Reported in the Monthly Bulletin of the California State Board of Health for May, 1909, volume 4, pages 137–138.
6. An investigation of the disinfecting power of "Hyco." This work was mentioned in the Monthly Bulletin of the California State Board of Health for June, 1909, volume 5, page 8. The unpublished report in full is on file in the State Hygienic Laboratory.
7. An investigation of the disinfecting powers of the "R. R. Rogers Disinfectant," the "R. R. Rogers Deodorizer," "1458" and "1459" (insecticides of the R. R. Rogers Co.). This work was mentioned in the Monthly Bulletin of the California State Board of Health for June, 1909, volume 5, page 8. The unpublished report in full is on file in the State Hygienic Laboratory.

The increase of the routine work in the laboratory is now making special investigation almost impossible. The addition of a second full-time bacteriologist would make it possible again to undertake without unreasonable delay the investigation of public health problems. The examination and exposure of fraudulent antiseptic substances and devices would prevent the public from wasting its money on inert substances which give a false and dangerous sense of security.

RESEARCH.

There are many diseases in California which are far from being understood. Systematic investigation with a view toward increasing our knowledge of these diseases and toward devising the most feasible methods for their control under the conditions existing in California should be an important part of the work of the State Hygienic Laboratory. An efficient research department could not fail to increase the weapons which are directed against disease. For example, the disease called infantile paralysis is now prevalent in a few communities of our State, our lack of knowledge concerning its cause and method of transmission prevents intelligent efforts to stop its spread. Whatever is discovered and published by the State Hygienic Laboratory immediately becomes the property of the whole country, and California should make some return for the information which other laboratories are constantly presenting to us.

BRANCH LABORATORIES.

Owing to the great size of California, and especially to its great length of nearly 800 miles as the bird flies, a central point like Berkeley is over 500 miles from the farthest corner of the State. Mountain ranges offer great difficulties in transportation and help make the central hygienic laboratory very inaccessible to many parts of California. Consequently, a considerable lapse of time is necessitated between the taking of a specimen by a physician in some inaccessible part of the state and its receipt at the laboratory. This delay is not very serious when the specimen to be examined is from some chronic or non-contagious disease. On the other hand, any delay in receiving the report concerning a culture from the throat of a person having diphtheria may result in the postponement of appropriate treatment by some physician who feels that there is not sufficient evidence of diphtheria to justify the administration of antitoxin without laboratory diagnosis. After the beginning of the disease every day's delay in giving the antitoxin for diphtheria has been shown by abundant statistics to cause a distinct increase in the mortality. Consequently, under the present conditions, physicians in many parts of the State find it necessary to decide from clinical data alone all questions dealing with the welfare of the patient. A late report on a culture would have a public health bearing, but would be of no benefit to the individual patient. It would also frequently permit the spread of disease owing to delay in establishing quarantine.

Considering the examinations for diphtheria and also the routine work for the diagnosis of typhoid, tuberculosis and malaria, and not overlooking the value of local field work, one can not fail to appreciate the necessity of the establishment of branch laboratories in several widely-separated parts of the State. Each branch should be established in one or two appropriate rooms in some building of ready access. The equipment need not be elaborate, but should be sufficient for all ordinary routine work. In charge of the branches should be placed a competent bacteriologist, and he should have as an assistant a stenographer or office worker, who could keep the office open, and receive specimens while the resident bacteriologist was away on some brief investigation in his district. A competent bacteriologist can not be secured and retained for any length of time for less than $1,500 a year. Adding to this a salary of $720 for the assistant, and allowing $780 for rent, equipment, and traveling expenses, one can readily see that each branch would require an annual appropriation of about $3,000.

On November 1, 1909, the nucleus for a southern branch was made possible by an arrangement in which Dr. Stanley P. Black for a merely nominal compensation generously agreed to examine in his laboratory diphtheria cultures and sputa for the State Hygienic Laboratory. If this southern laboratory were given the support which would justify the employment of a full-time bacteriologist and stenographer, the large area for which it does the work would soon begin to derive distinct benefit from a considerable increase in the use of the laboratory. A southern branch could easily handle the regular work for the following counties: Imperial, San Diego, Orange, Riverside, San Bernardino, Los Angeles, Ventura, Santa Barbara, and Inyo.

By making a special effort the laboratory has established in Fresno, since the close of the biennial period ending June 30, 1910, a branch laboratory, intended to do the routine work for the greater part of the San Joaquin Valley. The following counties comprise its field of work: Kern, Kings, Tulare, Fresno, Madera, Merced, Mariposa. The branch was started on August 1, 1910, under Dr. C. W. Bonynge, former assistant in the main laboratory in Berkeley. Since then the work has been efficiently carried on by Dr. Ernest Pring and Dr. R. A. Forrest. Until this branch is put on a stable financial basis, it will be difficult to retain able men in charge for any considerable length of time.

During the short period of existence of the Fresno branch it has been ably demonstrated that this substation is needed and appreciated. Cordial and efficient coöperation between the bacteriologists and the local health officers has resulted in the careful study and prompt suppression of several outbreaks of diphtheria and typhoid fever. With an effective system for the distribution of mailing outfits, the Fresno branch would probably soon rival the main laboratory in the total number of routine examinations.

In Fresno the need of an assistant to the bacteriologist has been amply demonstrated. The physician in charge was frequently asked to leave his office to make trips of investigation into regions where diphtheria or typhoid had appeared. This resulted in the laboratory being left locked up for hours and sometimes a day or two at a time. This is not right to the physicians who are being instructed to use the laboratory. There should always be some one present to receive specimens, give reports to physicians, and answer questions. It is proposed that an assistant be employed in each branch.

One of the investigations at Fresno consisted in tracing to their sources in the country several cases of typhoid. In some cases the sale of milk from the infected regions was stopped and the water supply in the afflicted districts was examined. One outbreak was traced to a polluted well by local investigations by the health officer and Dr. Pring and by a water analysis made in the main laboratory in Berkeley. Our representatives at Fresno have been glad to advise health officers and physicians on public health topics, and, as far as their time allowed, they have supported health officers in their earnest efforts to locate through field work the sources of contagion.

The northern part of the State should not be neglected. A branch ought to be established in some central community in the Sacramento Valley. Chico has been suggested as a suitable situation. This branch, as well as the one in Fresno, ought to have a decided influence in diminishing the frequencey of malarial infection in our great central valleys.

Three branch laboratories, situated in the Sacramento and San

Joaquin valleys and in the south, together with the main laboratory in Berkeley, would form a system which could render efficient and prompt service to the entire State.

DEPOSITORIES FOR MAILING OUTFITS.

In order that the State Hygienic Laboratory shall furnish the greatest possible assistance through its several stations it is necessary that mailing outfits shall be readily obtainable in any part of the State when need arises. A moderate sum of money will defray the expense of establishing in drug stores in every county depositories where the mailing outfits of the laboratory may be obtained. It is planned to give certain central drug stores in all the large towns an appointment as official depositories for the State Hygienic Laboratory. It is expected that druggists will be glad to render a free service to the physicians of their communities by keeping our outfits on hand for gratuitous distribution. A list of official depositories could be printed in the Bulletin of the State Board of Health and on a slip to be enclosed with mailing outfits or letters.

In order to insure keeping the depositories properly stocked with a variety of outfits, and especially to encourage the exchange of the diphtheria culture tubes before they become too dry, every druggist on our list should be communicated with at stated intervals. His reply would furnish us the information necessary for replenishing his supply.

The system of depositories, together with the proposed substations, would greatly shorten the time necessary for receiving laboratory aid, and consequently would greatly increase the work of the laboratory and its influence on the health of the people of the State.

LABORATORY STAFF.

During the biennial period from July 1, 1908, to June 30, 1910, several changes have taken place in the laboratory staff. Dr. Archibald R. Ward, the Director of the Laboratory, spent the year beginning July 1, 1908, on leave, in study and travel. During his absence Dr. George F. Reinhardt took charge of the laboratory. On May 1, 1910, Dr. Ward left the laboratory to take a position under the Government in the Philippines, and he was succeeded by the present director.

At the beginning of the period (July 1, 1908) Miss Elsie Cole took up the position of assistant, succeeding Miss Margaret Henderson, who gave up her position in the laboratory to give instruction in bacteriology in the University of California. On July 1, 1909, Miss Cole resigned her position, and Miss Dorothea Van Orden became assistant. From March 1, 1910, to July 1, 1910, Dr. C. W. Bonynge was assistant. Since July, 1910, Dr. C. B. McGlumphy, formerly assistant under Dr. Novy in the Pasteur institute at the University of Michigan, has held the position of assistant.

The present staff consists of:

Wilbur A. Sawyer, M.D.	Director.
C. B. McGlumphy, M.D.	Assistant
Stanley P. Black, M.D.	In charge of Southern Branch
R. A. Forrest, M.D.	In charge of Fresno Branch
Mary W. Meehan	Stenographer
Gilbert Sweet	Laboratory Helper

FINANCIAL NEEDS.

In order to carry on the work of the Hygenic Laboratory, as proposed in the preceding sections of this report, it will be necessary to expend $17,000 a year, or $34,000 for the coming biennial period. The increase in expenditure is due to the expense of maintaining three branch laboratories the outlay necessary for the purchase of mailing outfits and for expressage, the increase of the routine work and special investigations of the main laboratory, and the establishment of a Pasteur institute. A great increase in the purchase of mailing outfits and the cost of distributing them will be involved in the establishment of an extensive system of depositories. The increase of the routine work and special investigations of the main laboratory, even without the establishment of a Pasteur institute, demand the services of a second bacteriologist.

A summary of the needed expenditures follows:

Main Laboratory at Berkeley:	
Administration—	
Director's services (not included in estimates below)	
Stenographer's salary	$720 00
Bacteriological Laboratory—	
Bacteriologist's salary	1,500 00
Laboratory helper's salary	720 00
Pasteur Institute—	
Bacteriologist's salary	1,500 00
General expenses, including cost and distribution of mailing outfits for the laboratory and its branches, equipment, traveling expenses	3,560 00
Total	$8,000 00
Branch Laboratory in Fresno—	
Bacteriologist	$1,500 00
Stenographer or assistant	720 00
Equipment, rent, traveling expenses	780 00
	$3,000 00
Branch Laboratory in Southern California—	
Same items as for Fresno	3,000 00
Branch Laboratory in Northern California—	
Same items as for Fresno	3,000 00
Total for branches	$9,000 00
Total for laboratory and branches	$17,000 00
Total proposed expenditure of the State Hygienic Laboratory for the biennial period	$34,000 00

SUMMARY OF RECOMMENDATIONS.

In order to enable the State Hygienic Laboratory to fulfill the purpose for which it was founded and is being carried on, it is necessary that the marked increase of its regular work be recognized by sufficient support, and that opportunity be furnished for the development of the laboratory along new lines.

An additional bacteriologist should be added to the staff at the main laboratory in order that the routine work may be handled without preventing the carrying on of special investigations as occasions arise. This would permit some research along the lines of California's public health problems.

A Pasteur institute should be established as a department of the main laboratory in Berkeley before human deaths have occurred from the delay involved in the present system of obtaining the material for Pasteur treatments. The fact that the value of the Pasteur treatment depends on early administration, indicates the seriousness of the delay of from one to two weeks now necessary in California.

Three branch laboratories should be established in California. This would enable all parts of the State to receive the benefits of the laboratory. These laboratories should be stationed in Northern California, in Southern California, and in the San Joaquin Valley.

An extensive system of distributing depositories in drug stores should be established and maintained so that there shall be no delay in securing an outfit in which a specimen can be legally sent through the mails. The delay of several days in obtaining a culture tube for an examination for diphtheria may result in the death of the patient and in the spread of the disease from the unrecognized case.

The appropriation of the State Hygienic Laboratory should be increased to $17,000 per annum in order to permit the carrying out of the above recommendations.

FINANCIAL REPORT.

The California State Board of Health has expended for all purposes during the fiscal years 1908-1909 the following sums: Traveling and contingent, $7,047.77; pure food and drugs, $25,673.51; bacteriological laboratory, $6,696.11; printing, $4,244.75; tuberculosis, $2,150.61; contagious diseases, $38,205.19. Total, $84,017.94.

In explanation of the details of these expenditures the following statement with comments is given:

Traveling and Contingent Fund.

This fund is appropriated for the necessary traveling expenses of the Secretary and the other officers or employees of the board in carrying on its routine administration work, and for office stationery, stamps, equipment, extra clerical service, and for telephone, telegraph, and janitor service.

1908—Receipts.		1908—Expenditures.	
Unexpended balance from fifty-ninth fiscal year	$584 73	Quarter—July, 1908. to September. Warrants Nos. 511 917, 1,052, 1,837, 2,036, 2,855, 2,976, 3,004, 3,142, 3,272, 3,949.	$710 36
		Quarter October to December. Warrants Nos. 5,181, 5,486, 5,614, 5,882, 6,195, 7,262, 7,424, 7,959.	831 86
Amount appropriated	2,500 00	Quarter January, 1909, to March. Warrants Nos. 8,335, 9,900, 11,743, 12,981. 14,477, 16,029, 16,488, 17,060.	549 35
Fees, certified copies of deaths, births, and marriages	128 00	Quarter April to June. Warrants Nos. 18,130, 18,396, 18,678, 19,782. 19,956, 20,141, 20,978, 21,306. 21,648, 252, 253.	1,121 16
Total	$3,212 73	Total	$3,212 73

1909—Receipts.		1909—Expenditures.	
Amount appropriated	$3,000 00	Stationery, supplies, and postage	$312 45
		Janitor service and repairs	134 13
		Telephone, expressage, telegrams, and other current expense	231 79
		Traveling expenses of secretary, and members of board	1,282 72
		Salaries for vital statistics, and other clerical service	1,460 00
Fees, certified copies of births, deaths, and marriages	862 97	Permanent equipment	413 95
		Total	$3,835 04
		Balance	27 93
Total	$3,862 97	Total	$3,862 97

The permanent office equipment items are an adding machine (the expense for which was proportioned among the several funds, the amount charged to this fund being $175.00); Dictation phonograph, $171.80; desk lamps and cords, $20.50.

Pure Food and Drug Fund.

This fund is appropriated for the maintenance of a laboratory to collect and examine food and drug products and enforce the regulations of the Pure Food and Drugs Acts.

1908—Receipts.		1908—Expenditures.	
Unexpended balance from fifty-ninth fiscal year	$3,853 21	Quarter—July, 1908, to September Warrants Nos. 208, 510, 1,456, 2,034, 2,285, 3,006, 3,273, 3,948.	$2,796 80
		Quarter—October to December Warrants Nos. 5,196, 5,197, 5,485, 5,616, 5,802, 6,224, 6,839, 7,423, 7,957.	2,609 05
Amount appropriated	10,000 00	Quarter—January, 1909, to March Warrants Nos. 8,389, 11,194, 11,744, 11,780, 14,476, 14,859, 15,027, 17,063.	3,335 03
Fines collected from violations of pure food and drug law	1,135 00	Quarter—April to June Warrants Nos. 18,305, 18,637, 19-805, 20,546, 20,979, 21,308, 21,649.	3,138 78
		Total	$11,879 66
		Balance	3,108 55
Total	$14,988 21	Total	$14,988 21

1909—Receipts.		1909—Expenditures.	
Unexpended balance from sixtieth fiscal year	$3,108 55	Salaries, office and laboratory staff	$4,548 10
		Salaries for inspectors	4,225 00
		Traveling expenses of inspectors and attorney	1,977 37
Amount appropriated	10,000 00	Printing, postage, expressage	546 95
		Laboratory supplies and equipment	2,001 98
Fines collected from violations of pure food and drug law	687 00	Sheriff fees	494 45
		Total	$13,793 85
		Balance	1 70
Total	$13,795 55	Total	$13,795 55

The balance for 1908, was carried forward from the original equipment fund, but had to be used in 1909 for additional equipment and current expense in order to carry on the work required of the Board. the expected appropriation of $30,000, having been cut at the last moment to $20,000. Upon the advice of the Governor every effort has been made to carry on the full work of the division. A deficiency appropriation of $10,000 will be necessary to carry on the work as at present planned by the Department of Foods and Drugs.

Bacteriological Laboratory Fund.

The appropriation of this fund is for the purpose of carrying on routine bacteriological examinations for the determination of diphtheria, typhoid fever, malaria, rabies, etc., and for assistance in epidemiological investigations.

1908—Receipts.		1908—Expenditures.	
Amount appropriated	$2,000 00	Quarter—October, 1908, to December	$764 22
		Warrants Nos. 5,198, 7,134.	
		Quarter—April to June	580 84
		Warrant No. 18,652.	
		Quarter—July to September	647 94
		Warrants Nos. 251, 3,691.	
		Total	$1,693 00
		Balance	7 00
Total	$2,000 00	Total	$2,000 00

1909—Receipts.		1909—Expenditures.	
Unexpended balance from sixtieth fiscal year	$7 00	Salaries of office and laboratory staff	$3,416 11
		Equipment	1,180 00
		Office supplies	248 20
		Printing	158 80
		Total	$5,003 11
Amount appropriated	5,000 00	Balance	3 89
Total	$5,007 00	Total	$5,007 00

The Tuberculosis Fund.

This fund is provided for the collection and dissemination of knowledge among the people of California as to the best means of preventing the spread of tuberculosis.

1908—Receipts.		1908—Expenditures.	
Unexpended balance from fifty-ninth fiscal year	$1,447 44	Quarter—October, 1908 to December	$253 67
		Warrants Nos. 5,615, 7,084, 7,132.	
		Quarter—January to March	633 25
		Warrants Nos. 11,781, 17,061.	
		Quarter—April to June	485 70
		Warrants Nos. 19,674, 19,940, 21,445.	
		Total	$1,372 62
		Balance	74 82
Total	$1,447 44	Total	$1,447 44

1909—Receipts.		1909—Expenditures.	
Unexpended balance from sixtieth fiscal year	$74 82	Purchase of educational literature	$500 00
		Stationery, press work, and supplies	114 71
		Miscellaneous supplies	163 28
		Total	$777 99
Amount appropriated	$2,000 00	Balance	1,296 83
Total	$2,074 82	Total	$2,074 82

Printing Fund.

This fund is appropriated for printing bulletins, reports, stationery, etc., for the State Board of Health.

1908—Receipts.		1908—Expenditures.	
Unexpended balance from fifty-ninth fiscal year	$748 75	Quarter—July, 1908 to September Warrant No. 2,892.	$71 25
		Quarter—October to December Warrants Nos. 3,995, 5,651, 6,861.	1,443 50
		Quarter—January, 1909 to March Warrants Nos. 8,043, 11,812, 15,073.	198 25
		Quarter—April to June Warrants Nos. 18,051, 19,572, 20,935, 423.	535 75
Amount appropriated	$1,500 00		
Total	$2,248 75	Total	$2,248 75

1909—Receipts.		1909—Expenditures.	
Amount appropriated	$2,000 00	Monthly bulletins	$1,330 00
		Stationery and binding	433 25
		Health laws	62 25
		Blank forms	170 50
		Total	$1,996 00
		Balance	4 00
Total	$2,000 00	Total	$2,000 00

Contagious Disease Fund.

This fund is appropriated to be used to prevent the introduction, and provide for the investigation and suppression of contagious or infectious diseases.

1908—Receipts.		1908—Expenditures.	
Unexpended balance from fifty-ninth fiscal year	$56,516 96	Quarter—July, 1908, to September.	$5,774 01
		Warrants Nos. 292, 509, 1,454, 1,455, 2,035, 2,354, 3,007, 3,143, 3,947.	
		Quarter October to December	5,399 63
		Warrants Nos. 5,494, 5,495, 5,001, 6,225, 6,840, 7,133, 7,958.	
		Quarter—January, 1909, to March.	2,422 36
		Warrants Nos 11,195, 14,495, 17,062.	
		Quarter—April to June	3,054 06
		Warrants Nos. 18,636, 19,890, 20,545, 21,199, 21,307, 21,656, 21,651.	
			$16,650 06
		Balance	39,866 90
Total	$56,516 96	Total	$56,516 96

1909—Receipts.		1909—Expenditures.	
Unexpended balance from sixtieth fiscal year	$39,866 90	Bubonic Plague:	
		Salaries, inspectors of the dead	$4,395 00
		Traveling expenses	1.149 90
		Expressage on squirrels	5,593 06
		Camp supplies	424 55
		Repairs and perishable equipment	1,380 30
		Permanent equipment	3,618 45
		General miscellaneous expense	914 20
		Typhoid Fever and Malaria:	
		Water surveys and epidemiological investigations	711 04
		Smallpox and Vaccination:	
		Traveling expenses and printing	16 00
		Sanitation Car:	
		Equipment and current expenses and field investigations of sanitary conditions of towns visited	3,352 63
			$21,555 13
		Balance	18,311 77
Total	$39,866 90	Total	$39,866 90

Respectfully submitted.

JOHN F. LEINEN,
Chief Clerk

SPECIAL REPORTS.

ON THE PREVALENCE OF HOOKWORM DISEASE.

SAN FRANCISCO, CAL., October 27, 1910.

Dr. William F. Snow, Secretary California State Board of Health, Sacramento, California.

DEAR SIR: I herewith submit report of the investigation of hookworm disease in the mines of Jackson, Amador County.

Attention was first drawn to the occurrence of the disease in this locality by Dr. F. F. Sprague, and later by Dr. E. E. Endicott. Both of these physicians believed that the infection occurred in the adjacent mines, but as the cases observed were all either in persons who had been exposed to infection in other parts of the world or in foreigners of not many years residence here—Italians, Austrians, or Cornishmen,—many of whom we know are infected with hookworm before coming to this country, it was necessary to obtain more conclusive evidence before it could be considered that the disease had gained a foothold here. Further, the fact that the disease has not been reported as originating in any mines in the United States, made it appear that we were dealing with imported cases only.

In order to prove conclusively that the disease occurred endemically in a mine it would be necessary to demonstrate larvæ in the soil from the workings, or to find the disease in a person who had not been exposed to infection elsewhere for at least seven years, and preferably ten years. On account of the wandering habits of many of the miners, and the very small number of Americans employed, very few men were available for the purpose of such investigation.

In mine No. 1 the results were as follows:

No. 1—F. Native of California; never out of this State; health good, except for occasional attacks of abdominal pain, due, it was believed, to chronic appendicitis. Ova hookworm present. Blood shows eosinophilia 15 per cent.

No. 2—M. Native of California; never out of State. Has been mining for just two years only, and has during that time always been employed in this mine. Health good. Ova hookworm present. Eosinophilia 13 per cent.

No. 3—K. Nativity ? Not out of California during past forty-eight years. Resident of Jackson for last seventeen years. Health good, excepting for eruption on leg extending over considerable surface (a typical ground itch). Ova hookworm present. Eosinophilia 12 per cent.

No. 4—N. Nativity ? Resident of California for twenty-five years. Employed in this mine for fifteen years. Stated that health has not been good for some time. Shows evidence of moderate anemia. Ova hookworm present in feces. Blood not examined.

No. 5—L. Nativity, England. Nine years in Jackson. Health, he states, is excellent, but there is quite an apparent anemia. Ova hookworm present. Eosinophilia 5 per cent.

No. 6—F. Italian. Eight years in California. Five years in Jackson. Unable to work for past five months on account of weakness. Ova hookworm present. Eosinophilia 12 per cent.

Specimens of earth were taken from various parts of the mine where conditions of heat and moisture were suitable for the development of the parasite, and in one hookworm embryos were demonstrated.

In mine No. 2 it was impossible to obtain feces for examination. Larvæ of hookworm were demonstrated in specimens of soil taken from the workings.

In mine No. 3 several cases were found, but none had been in California a sufficient number of years to be of any positive value for the purpose of this investigation. No examination made of the workings of the mine.

EXTENT OF INFECTION.

The men were looked over in mines 1 and 2 after they had finished work, and were bathing and changing their clothes. Evidence of the disease was everywhere to be seen. The peculiar color of the face, which is so often found in this disease, even where the blood shows but slight reduction in the hemaglobin, was observed quite generally. Quite a number showed moderate anemia, while occasionally it was quite pronounced. It should be borne in mind that we are now considering only those men who were able to work—those so ill that they were unable to work, will be referred to later. Several cases of ground itch were observed, the arms and hands being the most frequently affected parts.

On account of the difficulties in obtaining a sufficient number of stools to form an estimate of the percentage of infected persons in the mines, blood smears were taken and the eosinophiles counted with the following results:

Mine No. 1.—Specimens from 18 miners. Some men selected who showed evidence of disease. In all examinations 100 cells were counted and the Wright's stain or Oliver's modification of it were used.

Number.	Eosinophilia.	Per cent.
1	Eosinophilia	13
2	Eosinophilia	24
3	Eosinophilia	17
4	Eosinophilia	12
5	Eosinophilia	18
6	Eosinophilia	7
7	Eosinophilia	15
8	Eosinophilia	13
9	Eosinophilia	5
10	Eosinophilia	13
11	Eosinophilia	21
12	Eosinophilia	9
13	Eosinophilia	10
14	Eosinophilia	18
15	Eosinophilia	3
16	Eosinophilia	20
17	Eosinophilia	11
18	Eosinophilia	12

Number 9 was referred to previously as an infected case, with 9 years' residence in Jackson, so that the probabilities are that all of the eighteen are infected excepting possibly Number 15—with an eosinophilia of 3 per cent. Stools were also obtained from the following on this list and all contained ova of hookworm, numbers 4, 7, 8, 20.

Feces from 8 individuals in this mine showed 7 positive. The negative stool came from an assayer whose work until comparatively recently had been entirely above the ground. The infection in this mine it would appear is close to 90 per cent.

Mine No. 2.—Men showing evidence of the disease were in some cases selected.

Number.	Eosinophilia.	Per cent.
1	Eosinophilia	8
2	Eosinophilia	3
3	Eosinophilia	0
4	Eosinophilia	6
5	Eosinophilia	5
6	Eosinophilia	2
7	Eosinophilia	3
8	Eosinophilia	4
9	Eosinophilia	7
10	Eosinophilia	8
11	Eosinophilia	4
12	Eosinophilia	24
13	Eosinophilia	8
14	Eosinophilia	15

It was impossible to obtain stools from any on this list. The conditions in this mine were very good, there being less moisture throughout most of the workings than in the other mines. Yet from the appearance of the blood, 10 out of the 14 examined, or 70 per cent, should be looked upon with suspicion.

Mine No. 3.—Blood was taken from the first eleven men who happened along. No selection was made in any case, with the following result:

Number.	Eosinophilia.	Per cent.
1	Eosinophilia	5
2	Eosinophilia	11
3	Eosinophilia	7
4	Eosinophilia	14
5	Eosinophilia	6
6	Eosinophilia	14
7	Eosinophilia	20
8	Eosinophilia	14
9	Eosinophilia	0
10	Eosinophilia	15
11	Eosinophilia	5

Here it would appear that all but one are infected, or over ninety per cent. In number 10 and number 11, the only ones on this list from whom stools could be obtained, ova of hookwork were found to be present. Of course, it should be remembered in considering the increase in the eosinophiles that such might be due to infection with other parasites, but in the examination of all the stools that could be obtained, evidence of other parasites was generally lacking. In one case *Strongyloides intestinalis* were present, and in another, *Trichocephalus dispar.*

CONDITIONS IN THE MINES RELATIVE TO DEVELOPMENT OF THE DISEASE.

First—Temperature.

It has been shown that in mines with a temperature below 70 degrees Fahrenheit that the disease makes but little headway. In the mines of Jackson, in portions where the men are working, the temperature is usually kept, by forced draft, below 70 degrees Fahrenheit, but in abandoned portions and adjacent cross cuts, the only places where a man would be likely to deposit his excrement, the temperature was often as high as 80 or 90 degrees Fahrenheit.

Second—Moisture.

A sufficient amount of moisture was found in portions of all of the levels visited.

Disposal of excrement—Although there are rules in force against the contaminating of the workings with feces, it was not very difficult to find evidence that these rules had been broken. The arrangement for the use of the men of tanks in the shafts is open to criticism and is believed to be one of the modes of infection.

ECONOMIC ASPECTS.

There is no question that the general efficiency of the men is noticeably impaired. At one mine, employing about 300 laborers, it was stated that a reserve of about 25 men had to be available to replace those who on account of sickness did not appear for work. Quite a few of the men have to lay off every now and again to recuperate. Several who were unable to work stated that when they arrived in Jackson they were perfectly strong and well. A large number of these men were encountered on the streets, some of them presenting marked degrees of anemia.

The greatest loss to the mine operators is occasioned by the large number of those moderately affected. In one mine a superintendent who was infected, ascribed his somewhat poor physical condition to the results of an illness which occurred a couple of years ago. Another man occupying a responsible position had to be given a vacation every now and then on account of declining health. He presented a quite noticeable anemia, and on examination of the stools, showed a heavy infection. Any number of similar cases could be cited, but these examples should be sufficient to show very clearly that the average miner infected with hookworm can not do the work of a normal man. A loss of 20 per cent in the efficiency of those infected would be a conservative estimate. That would mean in mine No. 2, for instance, where over 300 men are employed at an average of about $2.50 per day, and estimating the number of those infected as low as 50 per cent, a loss of over $20,000 a year.

When it is remembered that nearly 30 per cent of all deaths in Porto Rico are due to hookworm disease, it is safe to say that directly and indirectly many have died from the infection contracted in these mines.

The danger of the disease being spread in the neighboring valley should be considered, especially as the sanitary arrangements for the disposal of sewage in the town of Jackson are very poor, and as many of the infected miners who are too ill to work in the mines live on nearby farms until recuperated.

The extent of infection throughout the gold mines of California can very readily be estimated. The conditions of heat and moisture, necessary for the development of the larvæ, are more or less the same in all of the mines and all employ the same class of labor. It is believed that it will be found that all of the mines of California are more or less infected, and that probably conditions will approximate those found in Jackson.

The same statement can be made for Virginia City, Nevada. While the mines of Sutter Creek, near Jackson, were not visited, cases which undoubtedly were contracted there were seen. The origin of the infection of the California mines undoubtedly extends back many years. It was probably introduced by laborers from Cornwall, Austria, or Italy, in which countries the disease occurs extensively in the mines.

It may be stated in summary:

1. That hookworm disease is endemic in certain mines of California.
2. That from 50 per cent to 80 per cent of those working in these mines are infected.
3. That the infection undoubtedly is present in practically all of the gold mines of California, and in those just over the border of Nevada.

In conclusion it should be stated that every assistance was rendered by Dr. Endicott, the county health officer; also that the mine operators aided the investigation in every way possible.

Respectfully,

(Signed) HERBERT GUNN.

REPORT OF ENGINEER-INSPECTOR.

SECRETARY'S NOTE.—As stated in the report of the Secretary, the State Board has been carrying several experimental divisions of work with a view to determining the desirability of establishing permanent new departments—an engineering division has been among these. Mr. Baker is a field inspector, appointed in connection with the epidemiological work of the Board, but his training and his valuable coöperation with the Secretary has made possible the accomplishment of some valuable investigation and engineering surveys which are summarized below. For convenience in referring to this work the title of Engineer-Inspector has been used by the Board.

The work assigned to the Engineer-Inspector has covered the entire State, and may be summarized under the following explanatory headings:

1. Inspections made for the information of the Board in its investigation of stream pollution and the prevalence of typhoid fever, amœbic dysentery, and malaria.

Sacramento River and its tributaries above Sacramento—

Sisson.
Shasta Springs.
Shasta Retreat.
Mossbrae Tract.
Dunsmuir.
Kennett.
Redding.
Red Bluff.
Tehama.
Hamilton City.
Colusa.
Knights Landing.
Woodland.
Folsom.
Grass Valley.
Nevada City.
Colfax.
Auburn.
Oroville.
Marysville.
Chico.
Yuba City.

Merced River—

Yosemite Valley.
Wawona.
Merced.

Truckee River—

Truckee.
Ice Camps.

- *Salinas River—*
  - Castroville.
  - Salinas.
  - San Lucas.
  - San Ardo.
  - Gonzales.
  - King City.
  - San Miguel.
  - Paso Robles.
- *Pajaro River—*
  - Pajaro.
  - Watsonvile.
- *Russian River, and summer resorts—*
  - Ukiah.
  - Cloverdale.
  - Healdsburg.
  - Eagle Nest.
  - Rio Campo.
  - Guerneville.
  - Monte Rio.
  - Monte Cristo.
  - Mesa Grande.
  - Duncan Mills.
  - Camp Meeker.
  - Russian River Heights.
  - Guernewood Park.
  - Guernewood Heights.
  - Monte Sano.
  - La Boheme.

2. Inspections to get general information as to sewage disposal and water supplies of the towns and cities of the state.

- *Los Angeles Beach Resorts—*
  - Santa Monica.
  - Ocean Park.
  - Venice.
  - Playa del Rey.
  - Hyperion.
  - Hermosa Beach.
  - Huntington Beach.
  - Redondo.
  - Alamitos Bay.
  - Naples.
  - Bay City.
  - Long Beach.
  - Balboa.
  - Newport.
  - San Pedro.
- *Southern California—*
  - Riverside.
  - Pomona.
  - San Bernardino.
  - Redlands.
  - Patton.
  - Whittier.
  - San Diego.
  - La Jolla.
  - Coronado.
  - Corona.
  - Sawtelle.
  - Anaheim.
  - Santa Ana.
  - Pasadena.
- *Imperial Valley—*
  - Yuma, Arizona.
  - Calexico.
  - El Centro.
  - Imperial.
  - Holtville.
  - Brawley.
- *San Joaquin Valley—*
  - Bakersfield.
  - Porterville.
  - Lindsay.
  - Exeter.
  - Reedley.
  - Dinuba.
  - Sanger.
  - Clovis.
  - Fresno.
  - Kingsburg.
  - Selma.
  - Fowler.
  - Madera.
  - Turlock.
  - Merced.
  - Modesto.
- *Northern California—*
  - Williams.
  - Vacaville.
  - Willows.
  - Orland.
  - Santa Rosa.
  - Sebastopol.
  - Winters.
  - Sonoma.
  - San Jose.
  - Santa Clara.
  - Corning.
  - Biggs.
  - Hammonton.
  - Camp California, Santa Crus.

3. Special inspections and reports made on complaints and special requests from local communities in the State:

Sausalito, special report on wells.
Selma, special report on wells.
Hayden Hill and Adin, special report on typhoid.
Cupertino, special report on water.
Sebastopol, special report on water.
High Grove, special report on water pollution.
Arbuckle, special report on typhoid.
Corning, special report on typhoid.

Eldridge, special engineering report on sewage disposal.
Livermore, special engineering report on sewage disposal.
Riverside, dairy inspection.
Pomona, dairy inspection.
Roseville, dairy inspection.
Eagle Nest, special report on unsanitary conditions.
Guerneville, special report on river pollution.
Reedley, special engineering report on cesspool.
Hanford, special engineering report on sewer system.
Petaluma, October, 1909, special engineering report on sewage disposal.
Petaluma, October, 1910, special engineering report on sewage disposal.
Modesto, special engineering report on sewage disposal.
Hayward, special report on well pollution.
Richmond, dairy inspection and milk testing.
Sacramento River slough, dead fish nuisance.
Tracy, special engineering report on feasibility of sewer system.
Williams, special engineering report on feasibility of sewer system.
Colfax, special engineering report on feasibility of sewer system.
Orland, special engineering report on feasibility of sewer system.
Winters, special engineering report on feasibility of sewer system.
Oak Park, special report on water supply.
Agnew, special engineering report on sewage disposal.
San Jose, California Fruit Canners' Association, special engineering report on sewage disposal.
Belvedere, special engineering report on sewage disposal.
Corning, special engineering report on proposed sewer system.
Biggs, special engineering report on proposed sewage disposal.
El Verano and Sonoma, special engineering report on water pollution.
Loyalton, special engineering report on water supply and well pollution.
Portola, special engineering report on town and possible sewage disposal.
Broderick, special engineering report on sewage disposal.

THE NEED FOR A PERMANENT DIVISION OF SANITARY ENGINEERING FOR THE BOARD.

The following comments have been included at the request of the Secretary, as illustrating from the work already done, the need for developing a divison of Sanitary Engineering:

In connection with the work now being done, the Board should make a detailed study of the sewage purification plants in the State. There would be probably only five or six of these to be studied. The plants at Santa Clara, East San Jose, Pleasanton, Lodi, and Roseville probably, and the electrical purification plant at Santa Monica.

The five first named are all newly installed or in course of construction, and are the first of their kind in the State. As the need for further purification of sewage becomes more widely felt, more plants for effecting complete purification will be built. Probably many of them will be designed after these first few as patterns.

It will be strange, indeed, if these plants, designed without any previous local experiments in the methods they propose to employ, do not contain errors in design that will become evident on close study after they are put in operation. It is, therefore, very essential, as a matter of economy, that these defects be discovered and that engineers designing works of similar nature may know the results that these plants have given and know what to expect from the new ones.

The money saved in getting better efficiency will more than make up for that spent on investigations.

As an example of the practical value of such work, I will give the following letter taken from the files of the State Board of Health:

------------------------, CAL., October 20, 1910.

State Board of Health, Sacramento, Cal.

GENTLEMEN: In the "Technical World Magazine," November number, page 341, appears an article on "Saving a City's Sewage" by Harry H. Dunn. I would like you to inform me if by the process adopted at Santa Monica (which this article treats of) if septic tanks are done away with, what the relative cost of one process against the other would be.

As you know, we are preparing to make very extensive additions to our present system. The problem confronting us now is as to which system will be the most efficient in purifying our sewage. We have adopted plans for a liquefying tank, but actual construction has not begun.

Before beginning the actual construction and before too late, I am desirous of getting all the information possible to the end that we can get the best for our money.

Thanking you in advance, I am

Yours very truly.

-------------------------,
City Engineer of ----------------.

The Board is at a disadvantage in not having the results of any authentic detailed study of the Santa Monica plant and its work. It was examined superficially by the inspector, but no analyses were made by the Board. One can readily see the money value of such information to a man like the city engineer, whose letter is quoted above. A hundred dollars spent in proving poor efficiency in an apparatus, may save thousands from being spent on inefficient disposal schemes.

Experiments on sewage purification.—There is a large and useful field for experiments along the lines of sewage purification, and these could be economically conducted at some of the various state institutions. There are a number of these situated in different parts of the State under different conditions, and from a few experiments judiciously planned and carried out, much good might be gotten.

At the Sonoma State Home at Eldridge there are a thousand persons, the sewage being partially treated by a fairly good septic tank. There is ample fall for installing experimental filters of the trickling type, or contact beds. The place is only a few hours' run from San Francisco.

The Ukiah State Hospital, the Patton State Hospital, the Agnew State Hospital and several others have independent sewerage systems and disposal plants, and any one of them would be a splendid field for investigations.

Utility is to be the main idea in making these experiments, and the questions to be answered by the results will be such as have a direct bearing on the design and operation of real plants. The whole idea being to enable the State Board of Health to recommend efficient equipment and forestall needless expenditure on inefficient equipment.

Irrigation.—In this connection it may be found expedient to do some work on sewage irrigation. And to collect for publication the results of work already carried out by local authorities in the State. At Patton, Ukiah, and Eldridge such work may be done entirely under State control, choosing these places as representing the most widely varying conditions in California.

In outlining the irrigation investigations, it might be well to seek the advice of the Federal authorities who have for several years carried on irrigation investigations in California under the United States Department of Agriculture. If possible, it might be well to enlist the services temporarily of one of the men from this department who is trained in irrigation. Such details are, however, beyond the scope of this report.

Preliminary surveys of smaller towns without sewers.—This part of the work is one I believe will be productive of great good. During the last few months such surveys have been made of five towns, Tracy, Williams, Colfax, Orland, and Winters. The conditions leading to these surveys were as follows:

The towns had no sewer systems.

Conditions had become dangerous to health, due to the scattering over the towns of wells, cesspools, and privy vaults in promiscuous proximity.

Nuisances existed and were complained of from privy vaults, overflowing cesspools, flies as sources of danger in carrying infectious diseases.

Diseases that might have been caused by filth and fly infection existed in the towns.

The towns had no local engineer to make estimates of probable cost of sewer system, or to advise as to the feasibility of a system and logical methods of disposal.

Noting these conditions, the Board sent its Engineer-Inspector to examine the town, secure or make a map and note the portions of town now occupied, get some idea of slopes and decide on a feasible scheme for sewering the town and disposing of the sewage. He was to make a cost estimate as closely as the information at hand warranted. No levels were run except roughly with a hand-level, and no attempt was made by the Board to furnish the towns with engineering services for their detailed work. The idea was to give them some definite advice as to the feasibility of a system and its probable cost, so they would have some basis to work on.

It was thought that such assistance would bring the question to an issue sooner and cause sewers to be put in and the general sanitary condition of the town bettered, much sooner than would have been the case if left to itself.

In some cases this hope has been realized. The city trustees of Winters have asked for the report and are proceeding in the necessary steps to put in a sewer system. The same is true of the town of Orland. The town of Tracy has become incorporated and has asked the Board for the engineer's report on sewers for the town.

There are in the State many small towns in about the same condition as that which led the Board to order surveys of the five named above. During the next year it is desired to make preliminary surveys of each of these, or as many as possible of them, and file the reports at this office, to be sent to local authorities when sufficient interest is aroused.

The following correspondence from one of the towns surveyed gives an idea of the work:

———————, CAL., ———————.

Secretary State Board of Health, Sacramento, Cal.

DEAR SIR: Will you kindly send me what printed matter you may have on hand regarding sewage, and its disposal.

Yours truly,

(Dr.) ———————

Office of Secretary, California State
Board of Health, Sacramento, Cal., --------

Dr. --------------, --------------, *Cal.* (Through the Secretary's office.)

Dear Sir: In reply to your letter of the twenty-second, I am sending you under separate cover, two bulletins of this Board dealing with sewage disposal.

The Board is watching with a good deal of interest, the developments made along sanitary lines by the smaller towns of the State, and wishes to give them what assistance it can in these things.

In July of this year, having noticed from press clippings that your town was thinking of taking up the question of sewers, the Board sent me to get data for a general report on the feasibility and probable cost of a sewerage system and suitable disposal plant for ------------. The reports of that inspection are on file at this office and if the city officials care to avail themselves of this preliminary information, I would be glad to communicate further with you.

Yours very truly,

Engineer-Inspector Bureau of Epidemiology.

Respectfully forwarded,

Secretary.

----------------, Cal., ----------------

W. F. Snow, Secretary State Board of Health, Sacramento, Cal.

Dear Sir: Your letter and bulletins received, for which accept my thanks.

I am glad indeed to hear that you have made a general report on the feasibility and probable cost of a sewerage system for our town.

If you will, I wish you would send to me a copy of that report as soon as you can.

We have another meeting in a few days and I will place the report before the meeting and am sure that it will be of the greatest assistance to us in the installation of the system here.

Please put my name on the mailing list for the bulletin.

Very respectfully,

(Dr.) ----------------------

Office of the Secretary, California State
Board of Health, Sacramento, Cal., --------

Dr. --------------, --------------, *Cal.* (Through the Secretary's office.)

Dear Sir: In answer to your letter of the twenty-sixth, I am sending you herewith a copy of the report made to the State Board of Health in July, 1910, on the feasibility of a sewerage system in ----------------, possible methods of sewage disposal, and probable cost of same.

Under separate cover, I am sending you a map of a portion of ----------------. This forms a part of the report.

* * * * * * * * * *

Your name has been placed on the mailing list to receive further publications of the Board.

Yours very truly,

Engineer-Inspector Bureau of Epidemiology.

Respectfully forwarded,

Secretary.

Engineering advice to towns.—Before the State Board of Health, or any other body, can intelligently advise in matters of sanitary engineering, it must examine carefully the works that have been built and operated, and must note the features that contribute to their success or failure. Such an examination has been begun in the last year in California, but it is by no means complete. It is the hope of this department to eventually have on file at this office sewer maps, profiles, estimates, drawings of disposal plants, cost data, and detailed information concerning the sewerage and sewage disposal of every town and city of California. And those of some cities outside the State which present advanced ideas on the subject.

It is also hoped that files may be made and maintained showing data and maps of the sources of every public water supply in the State.

Almost every day letters come to this office from individuals, school trustees, and small municipalities, asking for advice in matters of sanitary engineering. It is the policy of the Board to court such inquiries, where the advice given may lead to the installation of equipment better than might otherwise be had. The Board would be unable to answer these queries if it had not the information on real works being operated.

Some typical examples of such correspondence follow, having been chosen from the files of the Board's letters during the last month or two:

———————, CAL., ————————, 1910.

State Board of Health, Sacramento, Cal.

GENTLEMEN: Enclosed you will find a sketch of a septic tank which we would respectfully ask your opinion as to improvements of the same. This tank does not work right. The conditions are as follows: This tank is located a short distance from the school buildings for the disposal of the town sewage. It has a capacity of 40,000 gallons and 15,000 gallons of sewage can be dumped into the tank. We find that the ditch that this tank empties into is covered with a thick, foul-smelling scum. This summer this scum got to a thickness of about six inches.

The scum is apparently of floating particles not being held in the tank and we have got to make some arrangement to hold this substance in the tank until the same is destroyed by bacteria.

This has got to be done to protect the health of our school children.

It has been suggested that the overflow pipes from the different partitions be carried down along the dotted lines, as shown on the sketch, as a remedy for this overflow, but before going to this expense we would respectfully ask your opinion of this change.

We would also like to know your opinion regarding a trap on the outlet pipe. How much sewage could be disposed of daily by this tank, and how much fresh water could be run through it?

An early reply in this matter will be greatly appreciated by,

Yours truly,

————————————, M.D.

OFFICE OF THE SECRETARY, STATE BOARD OF HEALTH,
SACRAMENTO, CALIFORNIA, September 23, 1910.

Dr. ——————————, ——————————, *Cal.*

DEAR SIR: I have at hand your letter to the board asking for advice as to changes in your septic tank.

It is rather difficult, as you know, to diagnose a case without seeing it. From your description, however, I judge that it is the effluent from the tank, standing stagnant in an open ditch, that is the source of trouble. We have frequently found this to be the case, even with some of the best designed septic tanks.

The septic process is, at best, only a preliminary process and the effluent from the tank should be carried as rapidly as possible to some place where the organic matter in it can be completely oxidized.

Under separate cover, I am sending you copies of the State Board of Health Bulletin in which you will find articles about septic treatment of sewage and explaining what may be expected of proper treatment by this process.

Your tank has a capacity of about 45,000 gallons, which would give ample storage (about eight hours) for a sewage flow of 120,000 gallons per day. * * * Sewage going through the tank at this rate would have the solids largely removed and those that remained would be in finely divided particles and could be readily oxidized and rendered inoffensive. * * * *

I am of the opinion that your idea of putting extensions on the pipes leading from the sections to the next is a good one. This is especially true of the outlet from the last chamber of the tank. * * * I do not think any large benefit would be had by trapping the outlet. * * * *

The most essential thing for you to have done, as I see your case, is to arrange for the prompt carrying away of your tank effluent. As long as it is allowed to stand stagnant, it will be a nuisance. Make a ditch so that it will be *kept moving*, and if it is possible to carry it to some flat gravelly land, it can be plowed into the ground with very little trouble.

If at any time this office can be of further service to you, the board will be glad to hear from you.

Yours very respectfully,

————————————,

Engineer Inspector,
Bureau of Epidemiology.

Respectfully forwarded,

————————————,

Secretary.

When such requests as the foregoing come in, if the place is within reasonable distance, the inspector is instructed to stop in and look over the field and get the information first hand. Very often he will notice things that affect the case, that escape the notice of an observer not trained in the work. Recommendations made after a personal visit by the inspector are much more satisfactory than the advice given on information furnished.

Larger towns have problems due to increasing needs and sometimes come to the State Board of Health for counsel. The correspondence in one case has already shown this.

Another instance is that of Petaluma. The method of sewage disposal there is no longer satisfactory, due to the gradual development of a number of causes. In response to a request from the local health officer, the Board sent its inspector to look over the situation from an engineering point of view and get facts for a report to the State Board. On the basis of this engineering report, recommendations were made to the trustees of Petaluma, giving estimates as to the extent of the work needed and its probable cost.

Hanford has been in conference with the Board in regard to a similar problem of an overtaxed sewage system. The State Board's inspector made an examination of the present system, and submitted an engineering reoprt showing its inadequacy and the need for improvements.

The knowledge that proposd improvements have the sanction of the State Board of Health often helps materially to make them possible when the bonds come to a vote of the people.

Passing upon proposed systems.—In only a few cases so far, has the Board has been asked to examine and pass upon plans for proposed works. This was done in the case of Modesto, and had a very good moral effect when the bonds for the sewer system came to a vote.

At Corning, before the recent bond election to provide the money for sewers and water works, the city trustees asked that the State Board of Health have some one go over the plans and approve them. This was done, the general plans and profiles of the water works and sewer system were gone over, the capacity of the pipes figured, and the design of the proposed disposal plant checked up. The fact that these details were approved by the State Board of Health no doubt had some part in creating a feeling of security, and helped to that extent to make the bond election a success.

There is no law in California, as there are in some states, requiring that such plans be approved by the State Board of Health before construction begins. It would, perhaps, be premature at this stage of the work, but such cases as those mentioned will do much to bring about that feeling of confidence in the State Board of Health in questions of sanitary engineering which will make such a state law possible and desirable. In the meantime it is for the State Board to continue to acquire that information and knowledge of engineering detail that will make its counsel welcomed as a valuable help by municipalities planning new works or improving old ones.

The office of the State Board of Health is the logical depository for this information and such departments, established in other states, notably Massachusetts, Ohio, New Jersey, Pennsylvania, and New York, have been productive of much good and have brought in large returns on the money invested.

Water pollution.—There are many cases of stream pollution that cannot be stopped at once. Partly because of insufficient machinery for enforcing the law, and partly due to the expense and time necessary to build purification works or make other plans for sewage disposal. But it is the hope of the department to "bring about the gradual abandonment of the streams of the State as carriers of filth, and to eventually reclaim them to their original state of purity."

Throughout the past year, the Board has investigated complaints on water pollution as this was possible with the limited force of inspectors. In many cases this was done in conection with the State Hygienic Laboratory, the inspector making a sanitary survey of the premises in connection with an analysis of the water. In cases where the pollution is evident, no analysis need be made. In cases such as wells, where the pollution is suspected, the analysis is interpreted in connection with the findings of the inspector.

Stream watersheds.—The inspection of the watersheds of the streams of the State was made with a view to finding out the extent of the pollution of these streams. It is useful for the Board to have this information for the study of water-carried diseases.

Engineers in their relation to the State Board of Health.—It is the desire of the Board to establish mutually helpful relations with the city engineers, especially of the smaller cities, and with the men who are doing sanitary engineering work throughout the State. To this end, a card catalogue of the names of all these men is being made, and note is being taken of works with which they have had any connection. From this index the Board will be able to know in a general way, the standing of the men. When inquiry is made of the Board concerning one of them, the parties asking can be referred to communities where that man has done work, and allowed to draw their own conclusions from his results.

As stated before, it is not the desire nor intention of the State Board of Health to furnish towns with engineering services, other than preliminary outlines and general advices as to policy, and as to the attitude of the Board toward their proposed works. The preliminary plans and estimates made in such cases as Winters and Orland, mentioned above, are never of such a nature that the works could be built from them without employing a sanitary engineer to make further study of local conditions, and detailed plans to fit them. So, instead of *taking* work *from* the engineers, they really *make* work *for* them. This first encouragement from the State Board of Health often arouses towns to put in works years earlier than they might, if left alone. Frequently, too, they are encouraged to put in *better* works, with more foresight, and thus avoid the useless expenditure, a few years later, for increases not provided for in the original design.

General outline of work for a division of sanitary engineering.—The work that should be done during the next year may be outlined as follows:

Study of sewage purification plants in the State.

Sewage investigations and experiments at State institutions, and other places.

Preliminary surveys, estimates, and engineering advice to smaller towns without regularly employed city engineers.

Completing records and files of information about:
Sewerage and sewage disposal in the State.
Water systems and sources in the State.

Special inspections and engineering reports on request:
Water pollution complaints.
Nuisance complaints.
Water supply problems.
Sewage disposal problems.

Inspections and examination of plans for new systems, on request.

Special inspections and engineering reports ordered by the Board.

Respectfully submitted.

NED D. BAKER,
Engineer Inspector Bureau of Epidemiology.